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# iSR6200
# Command Line Interface (CLI)

User's Guide

ISR654601-00 A

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# Preface

The *iSR6200 Command Line Interface (CLI) User's Guide* describes how to use the command line interface (CLI) to configure and manage the QLogic iSR6200 Intelligent Storage Router (iSR6200).

## Intended Audience

This user's guide is intended for individuals who are responsible for installing and servicing the iSR6200 router and the storage area network (SAN) equipment to which it is attached.

## What's in This Guide

This user's guide contains the basic information you need to get started with the CLI-based iSR6200 management tool.

This preface specifies the intended audience, explains the typographic conventions used in this guide, lists related documents, and provides technical support and contact information.

The remainder of the guide contains the following chapters and appendices:

- 1 CLI Usage specifies how to log on to a SAN router, describes the guest account, and shows how to work with router configurations.
- 2 Command Reference lists and describes each of the CLI commands, including the syntax, keywords, notes, and examples.
- 3 Configuring CHAP provides procedures for setting up CHAP for discovery sessions and normal sessions with both bi-directional and uni-directional CHAP.
- 4 Virtual Port Groups describes how to view and enable up to four virtual port groups (VPGs), required if you want iSCSI hosts to have access to more than 256 distinct LUNS from a given FC target array.
- Appendix A Simple Network Management Protocol describes how to use SNMP to monitor and manage the router through third-party applications that support SNMP version 1 and 2 and a QLogic management information base (MIB).

- Appendix B Log Messages provides details about messages logged to a file, including message categories for informational, error, and fatal log messages.

Following the appendices are a glossary of terms used and an index that will help you quickly find the information you need.

# Documentation Conventions

This guide uses the following typographic conventions:

***NOTE:***

Notes provide additional information.

- Text in blue font indicates a hyperlink (jump) to a figure, table, or section in this guide. Links to Web sites are shown in underlined blue. For example:

  See "Admin" on page 5-5.

  Table A-1 describes the SNMP properties.

  For more information, visit www.qlogic.com.

- Text in `monospace font` indicates a file name, directory path, or command line text. For example:

  Generate a file (`iSR6200_FRU.bin`) containing the saved data.

  ```
  Type of restore (0=full, 1=mappings only)  [full]
  ```

  Use the `show iscsi` command to find the iSCSI node name of the GE port.

- Text in **`bold monospace font`** indicates text you type at a command line. For example:

  ```
  iSR6200 <1>(admin) #> fru restore

  iSR6200 <1> #> show vpgroups
  ```

- Text in *italics* indicates terms, emphasis, variables, or document titles. For example:

  For a complete listing of license agreements, refer to the *QLogic Software End User License Agreement*.

  Each iSR6200 blade supports up to four *virtual port groups* (VPGs).

  When prompted, enter the `<ip_address>`.

- Text in ALL CAPITALS indicates the name of a key that you press on the keyboard. For example:

  Press the CTRL+Q keys.

  Type the number for Host Information and then press ENTER.

# Related Materials

For additional information related to the iSR6200, refer to the following documents:

- *iSR6250 Quick Start Guide*, part number SN0054545-00
- *iSR6250 Router Installation Guide*, part number SN0051103-00
- *iSR6200 Router Installation Guide*, part number ISR651101-00
- *iSR6200 Router Manager User's Guide*, part number ISR654602-00
- *Internet Protocol, Version 6 (IPv6) Specification*, RFC2460
- *Neighbor Discovery for IP Version 6 (IPv6),* RFC2461
- *IPv6 Stateless Address Auto-configuration*, RFC2462
- *Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification*, RFC2463
- *Transmission of IPv6 Packets over Ethernet Networks*, RFC2464
- iSCSI draft standard draft-ietf-ips-iSCSI-20
- Internet engineering task force (IETF): *iSCSI Requirements and Design Considerations, iSCSI Naming and Discovery, Internet Protocol Specification (IPv4)*, RFC793
- *Transmission Control Protocol (TCP) Specification*, RFC1122, *Requirements for Internet Hosts-Communication Layers*
- *TCP Extensions for High Performance*, RFC1323
- *TCP Congestion Control*, RFC2581
- ANSI SCSI: SCSI-3 Architecture Model (SAM), X3T10/994D/Rev 18, *SCSI-3 Controller Command Set,* X3T10/Project 1047D/Rev 6c. IEEE: 802.1Q *Virtual LAN (VLAN), 802.1p Priority of Service, 802.3x Flow Control, 802.3ad Link Aggregation*
- *SCSI-3 Fibre Channel Protocol (SCSI-FCP)*, X3.269:1996
- *Fibre Channel Physical and Signaling Interface (FC-PH)*, X3.230:199
- *Fibre Channel 2nd Generation (FC-PH-2)*, X3.297:1997

- *Third Generation Fibre Channel Physical and Signaling Interface (FC-PH-3), X3.303:1998, Fibre Channel-Arbitrated Loop (FC-AL-2)*, working draft, revision 6.4, August 28, 1998
- *Fibre Channel Fabric Loop Attachment Technical Report (FC-FLA)* NCITS/TR-20:1998, *Fibre Channel-Private Loop Direct Attach Technical Report (FC-PLDA)*
- *SCSI Fibre Channel Protocol-2 (FCP-2)* working draft, revision 3, October 1, 1999
- *ANSI Information Technology-SCSI 3 Architecture Model*, revision 18, November 27, 1995

# License Agreements

Refer to the *QLogic Software End User License Agreement* for a complete listing of all license agreements affecting this product.

# Technical Support

Customers should contact their authorized maintenance provider for technical support of their QLogic switch products. QLogic-direct customers may contact QLogic Technical Support; others will be redirected to their authorized maintenance provider.

Visit the QLogic support Web site listed in Contact Information for the latest firmware and software updates.

## Availability

QLogic Technical Support for products under warranty is available during local standard working hours excluding QLogic Observed Holidays.

## Training

QLogic offers training for technical professionals for all iSCSI, InfiniBand, and Fibre Channel products. From the main QLogic Web page, www.qlogic.com, click the **Education and Resources** tab at the top, and then click the **Education & Training** tab at the left. The QLogic Global Training Portal offers online courses, certification exams, and scheduling of in-person training.

Technical certification courses include installation, maintenance, and troubleshooting QLogic products. Upon demonstrating knowledge using live equipment, QLogic awards a certificate identifying the student as a Certified Professional. The training professionals at QLogic may be reached by e-mail at training@qlogic.com.

# Contact Information

Please feel free to contact your QLogic approved reseller or QLogic Technical Support at any phase of integration for assistance. QLogic Technical Support can be reached by the following methods:

| | |
|---|---|
| **Web** | http://support.qlogic.com |
| **E-mail** | support@qlogic.com |

The QLogic knowledge database contains troubleshooting information for the QLogic adapters. Access the database from the QLogic Support Web page, http://support.qlogic.com. Use the Support Center search engine to look for specific troubleshooting information.

## Notes

# 1 CLI Usage

The CLI enables you to perform a variety of router management tasks through an Ethernet or serial port connection. This chapter provides details about the following tasks:

- Logging on to a SAN Router
- “Understanding the Guest Account” on page 1-2
- “Working with SAN Router Configurations” on page 1-4

## Logging on to a SAN Router

You can either use Telnet or Secure SHell (SSH) to log on to a router, or you can log on to the switch through the serial port.

**To log on to a router using Telnet:**

1. On the workstation, open a command line window.
2. Enter the `telnet` command followed by the router IP address:

   `# telnet <ip_address>`

   A Telnet window opens and prompts you to log in.
3. Enter an account name and password.

**To log on to a router using SSH:**

SSH works similar to Telnet, except it uses RSA to encode transmissions to and from your workstation and the iSR6200 blade.

1. On the workstation, open a command line window.
2. Enter the `ssh` command followed by the router IP address:

   `# ssh <ip_address>`

   An SSH window opens and prompts you to log in.
3. Enter an account name and password.

**To log on to a switch through the serial port:**

1. Configure the workstation port with the following settings:
   - ❑ 115200 baud
   - ❑ 8-bit character
   - ❑ 1 stop bit
   - ❑ No parity
2. When prompted, enter an account name and password.

# Understanding the Guest Account

Routers come from the factory with the following account already defined:

Account name: **guest**

Password: **password**

This guest account provides access to the router and its configuration. After planning your router management needs, consider changing the password for this account. For information about changing passwords, see the `password` command (page 2-25).

The guest account is automatically closed after 15 minutes of inactivity.

The initial login opens at the chassis level. From the chassis level, select the blade to be managed. For example:

```
login as: guest
guest@172.17.136.86's password: *********

       ******************************************************
       *                                                    *
       *                      ISR6200                       *
       *                                                    *
       ******************************************************

iSR6200 #> help

  blade [ 1 | 2 ]
  exit
  help
  history
  logout
  quit
  show [ chassis ]
```

```
iSR6200 #> show chassis

  Chassis Information
  ---------------------
  Product Name                  ISR6200
  Chassis Name                  Router Chassis Name
  Serial Number                 0834E00019
  HW Version                    20697-03 A
  Fan Speed                     Normal

  Blade 1 Information (Left Slot)
  -------------------------------
  Status                        Online
  Product Name                  iSR6200
  Symbolic Name                 Blade-1
  Serial Number                 0834E00008
  HW Version                    20694-03 A
  SW Version                    3.0.1.0rc2a
  Temp (Front/Rear/CPU1/CPU2)   44C/33C/34C/38C

  Power Cooling Module 1
  ----------------------
  Status                        Installed
  Power Source                  Connected
  Fan1/Fan2/Fan3                Healthy/Healthy/Healthy

  Blade 2 Information (Right Slot)
  --------------------------------
  Status                        Offline

  Power Cooling Module 2
  ----------------------
  Status                        Installed
  Power Source                  Connected
  Fan1/Fan2/Fan3                Healthy/Healthy/Healthy

iSR6200 #> blade 1
iSR6200 <1> #>
```

# Working with SAN Router Configurations

Successfully managing routers with the command line interface depends on effective router configurations. Key router management tasks include modifying configurations, backing up configurations, and restoring configurations.

## Modifying a Configuration

The router has these major areas of configuration:

- **Management port configuration** requires using the following commands:
  - `set mgmt` (see page 2-42)
  - `show mgmt` (see page 2-69)
- **ISCSI port configuration** requires using the following commands:
  - `set iscsi` (see page 2-40)
  - `show iscsi` (see page 2-60)
- **Virtual port groups configuration** requires the following commands:
  - `set vpgroups` (see page 2-49)
  - `show vpgroups` (see page 2-84)
- **LUN mapping** requires using the following command:
  - `lunmask add` (see page 2-21)

## Saving and Restoring Router Configurations

Saving and restoring a configuration helps protect your work. You can also use a saved configuration as a template for configuring other routers.

### Save Blade Configuration and Persistence

Persistent data consists of system settings, virtual port group settings, LUN mappings, discovered FC targets, and discovered iSCSI initiators.

**To save a blade's configuration and persistent data:**

1. To generate a file (`iSR6200_FRU.bin`) containing the saved data (see page 2-12), execute the `fru save` CLI command.

   This command stores the file locally on the router in an FTP directory.

2. To transfer the saved data from the router to a workstation, execute an FTP utility on a workstation.

The following example shows an FTP transfer to get the saved router configuration data:

```
c:\> ftp 172.17.137.102
Connected to 172.17.137.102.
220 (none) FTP server (GNU inetutils 1.4.2) ready.
User (172.17.137.102:(none)): ftp
331 Guest login ok, type your name as password.
Password: ftp
230 Guest login ok, access restrictions apply.
ftp> bin
200 Type set to I.
ftp> get iSR6200_FRU.bin
200 PORT command successful.
150 Opening BINARY mode data connection for 'iSR6200_FRU.bin'
(6168 bytes).
226 Transfer complete.
ftp: 6168 bytes received in 0.00Seconds 6168000.00Kbytes/sec.
ftp> quit
221 Goodbye.
```

## Restore Router Configuration and Persistence

***NOTE:***

Dual-bladed iSR6200s perform an automatic field replaceable unit (FRU) restore on a new blade anytime it is detected in the chassis.

**To restore the router's configuration and persistent data:**

1. To transfer the saved data from a workstation to the router, execute an FTP utility on the workstation.

   The following example shows an FTP transfer to put previously saved router configuration data on the router:

```
c:\> ftp 172.17.137.102
Connected to 172.17.137.102.
220 (none) FTP server (GNU inetutils 1.4.2) ready.
User (172.17.137.102:(none)): ftp
331 Guest login ok, type your name as password.
Password: ftp
230 Guest login ok, access restrictions apply.
ftp> bin
```

```
200 Type set to I.
ftp> put iSR6200_FRU.bin
200 PORT command successful.
150 Opening BINARY mode data connection for 'iSR6200_FRU.bin'.
226 Transfer complete.
ftp: 6168 bytes sent in 0.00Seconds 6168000.00Kbytes/sec.
ftp> quit
221 Goodbye.
```

2. To update a blade with the saved configuration data (see page 2-12), execute the `fru restore` CLI command. The `fru restore` command has the following two options:

   - Full restore—Restores all router configuration parameters, including IP addresses, subnet masks, gateways, virtual port group settings, LUN mappings, and all other persistent data.
   - Partial restore—Restores only the LUN mappings and persistent data, such as discovered FC targets and iSCSI initiators.

# 2 Command Reference

This chapter lists and describes the iSR6200 Intelligent Storage Router CLI commands in alphabetical order. Each command description includes its syntax, keywords, notes, and examples.

## Command Lists

The tables in this section provide references to the chassis level and blade level commands used in the iSR6200 CLI.

Table 2-1 provides a link to the section containing details of each CLI *chassis* management command.

***Table 2-1. CLI Chassis Commands***

| For Commands Starting with: | Refer to Section: |
|---|---|
| B | “Blade” on page 2-8 |
| E | “Exit” on page 2-11 |
| H | “Help” on page 2-13<br>“History” on page 2-16 |
| L | “Logout” on page 2-20 |
| Q | “Quit” on page 2-27 |
| S | “Show Chassis” on page 2-54 |

Table 2-2 provides a link to the section containing details of each CLI *blade* management command.

***Table 2-2. CLI Blade Commands***

| For Commands Starting with: | Refer to Section: |
|---|---|
| A | “Admin” on page 2-6 |
| B | “Beacon” on page 2-7 |
| C | “Clear” on page 2-9 |
| D | “Date” on page 2-10 |
| E | “Exit” on page 2-11 |
| F | “FRU” on page 2-12 |
| H | “Help” on page 2-13<br>“History” on page 2-16 |
| I | “Image” on page 2-17<br>“Initiator” on page 2-18 |
| L | “Logout” on page 2-20<br>“Lunmask” on page 2-21<br>“Lunmask” on page 2-21 |
| P | “Passwd” on page 2-25<br>“Ping” on page 2-26 |
| Q | “Quit” on page 2-27 |
| R | “Reboot” on page 2-28<br>“Reset” on page 2-29 |
| S | “Save” on page 2-30<br>“Shutdown” on page 2-86 |

*Table 2-2. CLI Blade Commands (Continued)*

| For Commands Starting with: | Refer to Section: |
|---|---|
| Set | "Set" on page 2-31<br>"Set Alias" on page 2-33<br>"Set CHAP" on page 2-35<br>"Set Chassis" on page 2-36<br>"Set FC" on page 2-37<br>"Set Features" on page 2-39<br>"Set iSCSI" on page 2-40<br>"Set iSNS" on page 2-41<br>"Set Mgmt" on page 2-42<br>"Set NTP" on page 2-44<br>"Set Properties" on page 2-45<br>"Set SNMP" on page 2-46<br>"Set System" on page 2-48<br>"Set VPGroups" on page 2-49 |
| Show | "Show" on page 2-50<br>"Show CHAP" on page 2-53<br>"Show Chassis" on page 2-54<br>"Show FC" on page 2-56<br>"Show Features" on page 2-57<br>"Show Initiators" on page 2-58<br>"Show Initiators LUN Mask" on page 2-59<br>"Show iSCSI" on page 2-60<br>"Show iSNS" on page 2-62<br>"Show Logs" on page 2-63<br>"Show LUNinfo" on page 2-64<br>"Show LUNs" on page 2-65<br>"Show Lunmask" on page 2-67<br>"Show Memory" on page 2-68<br>"Show Mgmt" on page 2-69<br>"Show NTP" on page 2-70<br>"Show Perf" on page 2-71<br>"Show Presented Targets" on page 2-73<br>"Show Properties" on page 2-75<br>"Show SNMP" on page 2-76<br>"Show Stats" on page 2-77<br>"Show System" on page 2-81<br>"Show Targets" on page 2-82<br>"Show VPGroups" on page 2-84 |
| T | "Target" on page 2-87<br>"Traceroute" on page 2-88 |

# Command Syntax

The iSR6200 CLI command syntax uses the following format:

**command**
keyword
keyword [*value*]
keyword [*value1*] [*value2*]

The **command** is followed by one or more keywords. Consider the following rules and conventions:

- Commands and keywords are case insensitive.
- Required keyword values appear in standard font within brackets; for example, [value].
- Optional keyword values appear in italics within brackets; for example, [*value*].

In command prompts, <1> or <2> indicates which blade is being managed.

## Command Line Completion

The command line completion feature makes entering and repeating commands easier. Table 2-3 describes the command line completion keystrokes.

***Table 2-3. Command Line Completion Keystrokes***

| Keystroke | Effect |
|---|---|
| TAB | Completes the command line. Enter at least one character and press the TAB key to complete the command line. If more than one possibility exists, press the TAB key again to display all possibilities. |
| UP ARROW | Scrolls backward through the list of previously entered commands. |
| DOWN ARROW | Scrolls forward through the list of previously entered commands |
| CTRL+A | Moves the cursor to the beginning of the command line. |
| CTRL+E | Moves the cursor to the end of the command line. |

# Authority Requirements

The various `set` commands perform tasks that may require you to be in an administrator session. Note that:

- Commands related to monitoring tasks are available to *all* account names.
- Commands related to configuration tasks are available only within an *Admin* session. An account must have admin authority to enter the `admin start` command, which opens an admin session (see “Admin” on page 2-6).

## Admin

Opens and closes an administrator (admin) session. Any command that changes the router configuration must be done in an Admin session. An inactive Admin session will time out after 15 minutes.

**Authority** Admin session

**Syntax** **admin**

start (or begin)
end (or stop)
cancel

**Keywords**

**start (or begin)**

Opens the Admin session.

**end (or stop)**

Closes the Admin session. The `logout`, `shutdown`, and `reset` commands also end an Admin session.

**cancel**

Terminates an Admin session opened by another user. Use this keyword with care because it terminates the Admin session without warning the other user and without saving pending changes.

**Notes** Closing a Telnet window during an Admin session does not release the session. When using Telnet, you must either wait for the Admin session to time out, or use the `admin cancel` command.

**Examples** The following example shows how to open and close an Admin session:

```
iSR6200 <1> #> admin start
Password     :  ******
iSR6200 <1> (admin) #>
.
.
.
iSR6200 <1> (admin) #> admin end
iSR6200 <1> #>
```

## Beacon

Enables or disables flashing the blue beacon LED.

**Authority** None

**Syntax** **beacon**
on
off

**Keywords** **on**

Turns on the router beacon.

**off**

Turns off the router becon.

**Examples** The following example shows the `beacon` command:

```
iSR6200 <1> #> beacon on
```

## Blade

Allows for the selection of the blade to be managed. This command is only valid at the *chassis* prompt.

The *chassis* CLI prompt does not include the blade number (for example, `iSR6200 #>`), whereas the *blade* CLI prompt includes the blade number (for example, `iSR6200 <1> #>`).

**Authority** None

**Syntax** **blade [1 or 2]**

**Examples** The following example of the `blade` command shows blade 2 being selected from the chassis prompt, followed by a `quit` command at the blade prompt, which returns control to the chassis prompt:

```
iSR6200 #> blade 2
iSR6200 <2> #> quit
iSR6200 #>
```

## Clear

Removes all entries (events) from the router log file or resets the FC and iSCSI statistic counters.

**Authority** Admin session

**Syntax** **clear**
logs
stats

**Keywords** **logs**
Clears all entries from the router's log file.

**stats**
Resets the statistic counters.

**Examples** The following examples show the `clear` commands:

```
iSR6200 <1> (admin) #> clear logs

iSR6200 <1> (admin) #> clear stats
```

## Date

Displays or sets the date and time. To set the date and time, you must enter the information in the format *MMDDhhmmCCYY* (numeric representation of month-date-hour-minute-century-year). The new date and time takes effect immediately.

Each blade has its own independent date set. Properly setting the date ensures that event log entries are dated correctly. The date must be set prior to applying any feature keys or licenses.

**Authority** Admin session required to set the date and time. No authority is required to display the current date and time.

**Syntax** **date**

[*MMDDhhmmCCYY*]

**Keywords** **[*MMDDhhmmCCYY*]**

Specifies the date—this requires an Admin session. If you omit [*MMDDhhmmCCYY*], the command displays the current date, which does not require an Admin session.

**Notes** Always set the time using Greenwich Mean Time (GMT) and Universal Transverse Mercator (UTM).

You must disable the network time protocol (NTP) to set the time with the `date` command. Refer to the `set ntp` command on page 2-44 for information about NTP.

**Examples** The following examples show the `date` command:

```
iSR6200 <1> (admin) #> date 010214282009

Fri Jan  2 14:28:00 2009

iSR6200 <1> (admin) #> date

Fri Jan  2 14:28:14 2009
```

## Exit

Exits the command line interface and returns you to the login prompt. (Same as the `quit` command.)

**Authority** None

**Syntax** **exit**

**Examples** The `exit` command behaves differently depending on whether you at chassis or blade management level.

At the chassis management level, `exit` returns you to the login prompt. The following example shows the `exit` command for the chassis:

```
iSR6200 #> exit

(none) login:
```

At the blade management level, `exit` returns you to chassis management level. The following example shows the `exit` command for the blade:

```
iSR6200 <1> (admin) #> exit

iSR6200 #>
```

# FRU

Saves and restores the router's configuration.

**Authority** Admin session to restore

**Syntax** **fru**

restore

save

**Keywords** **restore**

The `fru restore` command requires that you first FTP the `tar` file containing the configuration to the router. When you issue this command, the system prompts you to enter the restore level. You can fully restore the router's configuration (all configuration parameters and LUN mappings) or restore only the LUN mappings. The restored configuration does not take effect until the router is rebooted.

**save**

The `fru save` command creates a `tar` file containing the blade's persistent data, configuration, and LUN mappings. The file is stored in the router's `/var/ftp` directory. You must then FTP the `tar` file from the router.

**Examples** The following example shows the `fru restore` command:

```
iSR6200 <1> (admin) #> fru restore

A list of attributes with formatting and current values will
follow. Enter a new value or simply press the ENTER key to accept
the current value. If you wish to terminate this process before
reaching the end of the list press 'q' or 'Q' and the ENTER key to
do so.

Type of restore (0=full, 1=mappings only)  [full]

FRU restore completed.
Please reboot the system for configuration to take affect.
```

The following example shows the `fru save` command:

```
iSR6200 <1> (admin) #> fru save

FRU save completed. Configuration File is QLogic_Router_FRU.bin
Please use FTP to extract the file out from the System.
```

## Help

Displays a list of the commands and their syntax.

**Authority** None

**Syntax** **help**

**Examples** The help command differs for the chassis and the blade.

The following example shows the `help` command for the chassis:

```
iSR6200 #> help

  blade [ 1 | 2 ]
  exit
  help
  history
  logout
  quit
  show [ chassis ]
```

The following example shows the `help` command for the blade:

```
iSR6200 <1> #> help

  admin [ begin | end | start | stop | cancel ]
  beacon [ on | off ]
  date [ <MMDDhhmmCCYY> ]
  clear [ logs | stats ]
  exit
  fru [ restore | save ]
  help
  history
  image [ cleanup | list | unpack ]
      image cleanup
      image list
      image unpack [ <filename> ]
  initiator [ add | mod | rm ]
  logout
  lunmask [ add | rm ]
  passwd
  ping
  quit
  reboot
```

```
reset [ factory | mappings ]
save [ capture | logs | traces ]
set [ alias      | chap       | chassis    | fc
      features   | iscsi      | isns       | mgmt
      ntp        | properties | snmp       | system
      vpgroups ]
    set alias
    set chap
    set chassis
    set fc [ <PORT_NUM> ]
    set features
    set iscsi [ <PORT_NUM> ]
    set isns
    set mgmt
    set ntp
    set properties
    set snmp [trap_destinations [ <DEST_NUM> ]]
    set system
    set vpgroups [vpgroup index]
show [ chap              | chassis             | fc       | features
       initiators        | initiators_lunmask | iscsi    | isns
       logs              | luninfo             | luns     | lunmask
       memory            | mgmt                | ntp      | perf
       presented_targets | properties          | snmp     | stats
       system            | targets             | vpgroups ]
    show chap
    show chassis
    show fc [ <PORT_NUM> ]
    show features
    show initiators [ fc | iscsi ]
    show initiators_lunmask
    show iscsi [ <PORT_NUM> ]
    show isns
    show logs [ <ENTRIES> ]
    show luninfo
    show luns
    show lunmask
    show memory
    show mgmt
```

```
    show ntp
    show perf [ byte | init_rbyte | init_wbyte | tgt_rbyte | tgt_wbyte ]
    show presented_targets [ fc | iscsi ]
    show properties
    show snmp
    show stats
    show system
    show targets [ fc | iscsi ]
    show vpgroups [vpgroup index]
shutdown
target [ add | rm ]
traceroute
```

## History

Displays a numbered list of the previously entered commands.

**Authority** None

**Syntax** **history**

**Examples** The following example shows the `history` command:

```
iSR6200 <1> (admin) #> history
1: admin start
2: help
3: history
iSR6200 <1> (admin) #>
```

## Image

Updates the router's firmware image and cleans up (removes) the image files in the router's `/var/ftp` directory.

**Authority** Admin session

**Syntax** **image**

cleanup
list [*file*]
unpack [*file*]

**Keywords** **cleanup**

Removes all firmware image files in the router's `/var/ftp` directory. These are files transferred by the user when updating the router's firmware image.

**list [*file*]**

Displays a list of the firmware image files in the router's `/var/ftp` directory.

**unpack [*file*]**

Unpacks the firmware image file specified in the `[file]` parameter and installs the firmware image on the router. Prior to using this command, you must first transfer the firmware image file to the router's `/var/ftp` directory using FTP. To activate the new firmware, you must reboot the router.

**Examples** The following example shows the `image cleanup` command:

```
iSR6200 <1> (admin) #> image cleanup
```

The following example shows the `image list` command:

```
iSR6200 <1> (admin) #> image list
  Image Location         Image File
  --------------         ----------
  Blade 1 (local)        isr-6200-3_0_0_5.bin
```

The following example shows the `image unpack` command:

```
iSR6200 <1> (admin) #> image unpack iSR6200-2_0_0_1.bin

Unpack Completed.  Please reboot the system for FW to take effect.

iSR6200 <1> (admin) #> reboot

Are you sure you want to reboot the System (y/n):  y
System will now be rebooted...
```

## Initiator

Adds, modifies, and removes an initiator in the router's database.

**Authority** Admin session

**Syntax** **initiator**
add
mod
remove

**Keywords** **add**

Adds an initiator to the router's database.

**mod**

Modifies the settings of an initiator.

**rm (remove)**

Removes a logged out initiator. You cannot remove an initiator that is currently logged in.

**Examples** The following example shows the `initiator add` command:

```
iSR6200 <1> (admin) #> initiator add

A list of attributes with formatting and current values will follow. Enter a
new value or simply press the ENTER key to accept the current value. If you
wish to terminate this process before reaching the end of the list press 'q' or
'Q' and the ENTER key to do so.

Only valid iSCSI name characters will be accepted.  Valid characters include
lower-case alphabetical (a-z), numerical (0-9), colon, hyphen, and period.

iSCSI Initiator Name (Max = 223 characters)      [            ]
                                      iqn.1991-05.com.microsoft:qlogic-09sd5i4l
OS Type (0=MS Windows, 1=Linux, 2=Other)         [MS Windows  ]

All attribute values for that have been changed will now be saved.
```

The following example shows the `initiator mod` (modify) command:

```
iSR6200 <1> (admin) #> initiator mod

Index    (WWNN,WWPN/iSCSI Name)
-----    ----------------------
0        iqn.1991-05.com.microsoft:qlogic-09sd5i4l

Please select an Initiator from the list above ('q' to quit):  0
```

```
A list of attributes with formatting and current values will follow. Enter a
new value or simply press the ENTER key to accept the current value. If you
wish to terminate this process before reaching the end of the list press 'q' or
'Q' and the ENTER key to do so.

OS Type (0=MS Windows, 1=Linux, 2=Other)          [MS Windows  ]

All attribute values for that have been changed will now be saved.
```

The following example shows the `initiator rm` (remove) command:

```
iSR6200 <1> (admin) #> initiator rm

Index    Status    (WWNN,WWPN/iSCSI Name)
-----    ------    ----------------------
  0   LoggedOut    test
  1   LoggedOut    iqn.1991-05.com.microsoft:qlogic-09sd5i4l

Please select a 'LoggedOut' Initiator from the list above ('q' to quit):  0

All attribute values for that have been changed will now be saved.
```

## Logout

Exits the command line interface and returns you to the login prompt.

**Authority** None

**Syntax** **logout**

**Examples** The following example shows the `logout` command:

```
iSR6200 <1> (admin) #> logout

(none) login:
```

## Lunmask

Maps a target LUN to an initiator, and also removes mappings. The CLI prompts you to select from a list of virtual port groups, targets, LUNs and initiators.

**Authority** Admin session

**Syntax** **lunmask**
add
remove

**Keywords** **add**

Maps a LUN to an initiator. After you enter the command, the CLI displays a series of prompts from which you choose the initiator, target, and LUN from lists of existing devices.

**remove**

Removes the mapping of a LUN from an initiator. After you enter the command, the CLI displays a series of prompts from which you choose the initiator, target, and LUN from lists of existing devices.

**Examples** The following example shows the `lunmask add` command:

```
iSR6200 <1> (admin) #> lunmask add

  Index    (WWNN/iSCSI Name)
  -----    -----------------
  0        iqn.1991-05.com.microsoft:qlogic-09sd5i4l

  Please select an Initiator from the list above ('q' to quit):  0

  Index    (WWNN,WWPN/iSCSI Name)
  -----    ----------------------
  0        20:00:00:20:37:fd:8b:ab,22:00:00:20:37:fd:8b:ab
  1        20:00:00:20:37:fd:8a:b0,22:00:00:20:37:fd:8a:b0
  2        20:00:00:20:37:fd:9c:f7,22:00:00:20:37:fd:9c:f7
  3        20:00:00:20:37:fd:8d:00,22:00:00:20:37:fd:8d:00

  Please select a Target from the list above ('q' to quit):  0

  LUN    WWULN                                              Vendor
  ----   ----------                                         --------
  0      20:00:00:20:37:fd:8b:ab:00:00:00:00:fc:b7:3f:fa SEAGATE

Please select a LUN to present to the initiator ('q' to quit):  0
```

```
All attribute values for that have been changed will now be saved.
```

The following shows an example of the `lunmask add` command with virtual port groups:

```
iSR6200 <1> (admin) #> lunmask add

  Index   Mapped  (WWNN,WWPN/iSCSI Name)
  -----   ------  ----------------------
  0       Yes     iqn.1991-05.com.microsoft:winhaz38

  Please select an Initiator from the list above ('q' to quit):  0

  Index   (VpGroup Name)
  -----   --------------
  1       VPGROUP_1
  2       VPGROUP_2
  3       VPGROUP_3
  4       VPGROUP_4

  Multiple VpGroups are currently 'ENABLED'.
  Please select a VpGroup from the list above ('q' to quit):  1

  Index   (WWNN,WWPN/iSCSI Name)
  -----   ----------------------
  0       50:06:01:60:c1:e0:0d:a2,50:06:01:60:41:e0:0d:a2
  1       50:06:01:60:c1:e0:0d:a2,50:06:01:68:41:e0:0d:a2

  Please select a Target from the list above ('q' to quit):  0

  Index  (LUN/VpGroup)     Vendor
  -----  -------------     ------
  1      1/VPGROUP_1       DGC
  2      2/VPGROUP_1       DGC
  3      3/VPGROUP_1       DGC

  Please select a LUN to present to the initiator ('q' to quit):  1

  All attribute values that have been changed will now be saved.
```

The following example shows the `lunmask rm` (remove) command:

```
iSR6200 <1> (admin) #> lunmask rm

  Index    (WWNN,WWPN/iSCSI Name)
  -----    ----------------------
  0        20:00:00:20:37:fd:8b:ab,22:00:00:20:37:fd:8b:ab
  1        20:00:00:20:37:fd:8a:b0,22:00:00:20:37:fd:8a:b0
  2        20:00:00:20:37:fd:9c:f7,22:00:00:20:37:fd:9c:f7
  3        20:00:00:20:37:fd:8d:00,22:00:00:20:37:fd:8d:00

  Please select a Target from the list above ('q' to quit):  0

  LUN   WWULN                                                Vendor
  ----  ----------                                           --------
  0     20:00:00:20:37:fd:8b:ab:00:00:00:00:fc:b6:1f:fa SEAGATE

  Please select a LUN from the list above ('q' to quit):  0
  Index    Initiator
  -----    -----------------
  0        iqn.1991-05.com.microsoft:qlogic-09sd5i4l

  Please select an Initiator to remove ('a' to remove all, 'q' to quit):  0

  All attribute values for that have been changed will now be saved.
```

The following shows an example of the `lunmask rm` command with virtual port groups:

```
iSR6200 <1> (admin) #> lunmask rm

  Index    (WWNN,WWPN/iSCSI Name)
  -----    ----------------------
  0        50:06:01:60:c1:e0:0d:a2,50:06:01:60:41:e0:0d:a2
  1        50:06:01:60:c1:e0:0d:a2,50:06:01:68:41:e0:0d:a2

  Please select a Target from the list above ('q' to quit):  0

  Index   (LUN/VpGroup)      Vendor
  -----   -------------      ------
  0       0/VPGROUP_1        DGC
  1       1/VPGROUP_1        DGC
  2       2/VPGROUP_1        DGC
  3       3/VPGROUP_1        DGC
  4       0/VPGROUP_2        DGC
```

```
  Please select a LUN from the list above ('q' to quit):  0
  Index   Initiator
  -----   -----------------
  0       iqn.1991-05.com.microsoft:winhaz38

  Please select an Initiator to remove ('a' to remove all, 'q' to quit):  0

  All attribute values that have been changed will now be saved.

iSR6200 <1> (admin) #>
```

## Passwd

Changes the guest and administrator passwords.

**Authority** Admin session

**Syntax** **passwd**

**Examples** The following example shows the `passwd` command:

```
iSR6200 <1> (admin) #> passwd

    Press 'q' and the ENTER key to abort this command.

  Select password to change (0=guest, 1=admin)  :  1
  account OLD password                          :  ******
  account NEW password (6-128 chars)            :  ******
  please confirm account NEW password           :  ******
  Password has been changed.
```

# Ping

Verifies the connectivity of management and GE ports. This command works with both IPv4 and IPv6.

Authority Admin session

**Syntax** **ping**

**Examples** The following example shows the `ping` command:

```
iSR6200 <1> (admin) #> ping

A list of attributes with formatting and current values will follow. Enter a
new value or simply press the ENTER key to accept the current value. If you
wish to terminate this process before reaching the end of the list press 'q' or
'Q' and the ENTER key to do so.

IP Address (IPv4 or IPv6)                [0.0.0.0] fe80::217:a4ff:fe99:c279
Iteration Count (0=Continuously)         [0      ] 10
Outbound Port (0=Mgmt, 1=GE1, 2=GE2, ...) [Mgmt   ]
Size Of Packet (Min=1, Max=65486 Bytes)  [56     ]

Pinging fe80::217:a4ff:fe99:c279 with 56 bytes of data:

Request timed out.
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.4ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.3ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.3ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.2ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.3ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.3ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.7ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.2ms
Reply from fe80::217:a4ff:fe99:c279: bytes=64 time=0.2ms

Ping Statistics for fe80::217:a4ff:fe99:c279:
Packets:  Sent  = 10,  Received = 9, Lost = 1
Approximate round trip times in milli-seconds:
Minimum = 0.2ms, Maximum = 0.7ms, Average = 0.3ms
```

## Quit

Exits the command line interface and returns you to the login prompt. (Same as the `exit` command.)

**Authority** None

**Syntax** **quit**

**Examples** The `quit` command behaves differently depending on whether you at chassis or blade management level.

At the chassis management level, `quit` returns you to the login prompt. The following example shows the `quit` command for the chassis:

```
iSR6200 <1> (admin) #> quit

(none) login:
```

At the blade management level, `quit` returns you to chassis management level. The following example shows the `quit` command for the blade:

```
iSR6200 <1> (admin) #> quit

iSR6200 #>
```

## Reboot

Restarts the blade firmware.

**Authority** Admin session

**Syntax** **reboot**

**Examples** The following example shows the `reboot` command:

```
iSR6200 <1> (admin) #> reboot

Are you sure you want to reboot the System (y/n):  y
System will now be rebooted...
```

## Reset

Restores the router configuration parameters to the factory default values.

The `reset factory` command deletes all LUN mappings, as well as all persistent data regarding targets, LUNs, initiators, virtual port group settings, log files, iSCSI and MGMT IP addresses, FC and Ethernet port statistics, and passwords. This command also restores the factory default IP addresses.

The `reset mappings` command clears only the LUN mappings.

**Authority** Admin session

**Syntax** **reset**
factory
mappings

**Examples** The following example shows the `reset factory` command:

```
iSR6200 <1> (admin) #> reset factory

Are you sure you want to restore to factory default settings (y/n): y
Please reboot the System for the settings to take affect.
```

The following example shows the `reset mappings` command:

```
iSR6200 <1> (admin) #> reset mappings

Are you sure you want to reset the mappings in the system (y/n): y

Please reboot the System for the settings to take affect.
```

## Save

Saves logs and traces.

**Authority** Admin session

**Syntax** **save**

capture
logs
traces

**Keywords** **capture**

The `save capture` command creates a debug file that captures all debug dump data. After the command completes, you must FTP the debug capture file from the blade.

**logs**

The `save logs` command creates a `tar` file that contains the router's log data, storing the file in the router's `/var/ftp` directory. After the command completes, you must FTP the log's `tar` file from the blade.

**traces**

The `save traces` command creates a `tar` file that contains the router's dump data, storing the tar file in the router's `/var/ftp` directory. After the command completes, you must FTP the trace's `tar` file from the blade. After executing this command, the system notifies you if the router does not have any dump data. Each time it generates dump data, the system adds an event log entry.

**Examples** The following example shows the `save capture` command:

```
iSR6200 <1> (admin) #> save capture
Debug capture completed. Package is System_Capture.tar.gz
Please use FTP to extract the file out from the System.
```

The following example shows the `save logs` command:

```
iSR6200 <1> (admin) #> save logs
Save Event Logs completed.  Package is Router_Evl.tar.gz
Please use FTP to extract the file out from the System.
```

The following example shows the `save traces` command:

```
iSR6200 <1> (admin) #> save traces
Save ASIC Traces completed.  Package is Router_Asic_Trace.tar.gz
Please use FTP to extract the file out from the System.
```

## Set

Configures general router parameters, as well as parameters that are specific to the FC, iSCSI, and management ports.

**Authority** Admin session

**Syntax** **set**

alias
chap
chassis
fc [ <*PORT_NUM*> ]
features
iscsi [ <*PORT_NUM*> ]
isns
mgmt
ntp
properties
snmp [trap_destinations [ <*DEST_NUM*> ]]
system
vpgroups [vpgroup index]

**Keywords** **alias**

Assigns alias name to a presented iSCSI target. (See “Set Alias” on page 2-33.)

**chap**

Sets the CHAP secrets. (See “Set CHAP” on page 2-35.)

**chassis**

Sets the chassis name. (See “Set Chassis” on page 2-36.)

**fc [ <*PORT_NUM*> ]**

Sets the FC port parameters. (See “Set FC” on page 2-37.)

**features**

Applies license keys to the router. (See “Set Features” on page 2-39.)

**iscsi [ <*PORT_NUM*> ]**

Sets the iSCSI port parameters. (See “Set iSCSI” on page 2-40.)

**isns**

Sets the Internet simple name service (iSNS) parameters. (See “Set iSNS” on page 2-41.)

**mgmt**

Sets the management port parameters. (See “Set Mgmt” on page 2-42.)

**ntp**

Sets the network time protocol (NTP) parameters. (See “Set NTP” on page 2-44.)

**properties**

Configures CLI properties for the blade. (See “Set Properties” on page 2-45.)

**snmp [trap_destinations [ <*DEST_NUM*> ]]**

Sets the simple network management protocol (SNMP) parameters. (See “Set SNMP” on page 2-46.)

**system**

Sets system parameters such as symbolic name and log level. (See “Set System” on page 2-48.)

**vpgroups [vpgroup index]**

Sets virtual port groups (VPGs) on the blade. (See “Set VPGroups” on page 2-49.)

## Set Alias

Allows an alias name to be assigned to a presented iSCSI target.

**Authority** Admin session

**Syntax** **set alias**

**Examples** The following example shows the `set alias` command. The example also shows the results of this command using the `show presented_targets` command:

```
iSR6200 <2> (admin) #> set alias

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  Index    (WWNN,WWPN/iSCSI Name)
  -----    ----------------------
  0        iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d2c
  1        iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d29
  2        iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d2d
  3        iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d28

  Please select a iSCSI node from the list above ('q' to quit):  0

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  Alias (Max=255 Characters, 0=Emtpy String)    [        ] FirstTarget

  All attribute values that have been changed will now be saved.

iSR6200 <2> (admin) #> show presented_targets

  Presented Target Information
  ----------------------------

  iSCSI Presented Targets
  -----------------------
  Name     iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d2c
```

```
Alias    FirstTarget
<MAPS TO>
WWNN     50:00:1f:e1:50:06:9d:20
WWPN     50:00:1f:e1:50:06:9d:2c

Name     iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d29
Alias
<MAPS TO>
WWNN     50:00:1f:e1:50:06:9d:20
WWPN     50:00:1f:e1:50:06:9d:29

Name     iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d2d
Alias
<MAPS TO>
WWNN     50:00:1f:e1:50:06:9d:20
WWPN     50:00:1f:e1:50:06:9d:2d

Name     iqn.2004-08.com.qlogic:isr6200.0823e00010.b2.01.50001fe150069d28
Alias
<MAPS TO>
WWNN     50:00:1f:e1:50:06:9d:20
WWPN     50:00:1f:e1:50:06:9d:28
```

## Set CHAP

Provides for the configuration of the *challenge handshake authentication protocol* (CHAP). For configuration details, see 3 Configuring CHAP.

Authority Admin session

**Syntax** **set chap**

**Examples** The following example shows the `set chap` command:

```
iSR6200 <1> (admin) #> set chap

A list of attributes with formatting and current values will follow. Enter a
new value or simply press the ENTER key to accept the current value. If you
wish to terminate this process before reaching the end of the list press 'q' or
'Q' and the ENTER key to do so.

  Index   iSCSI Name
  -----   ----------
  0       iqn.2004-08.com.qlogic:iSR6200:test.0
  1       iqn.2004-08.com.qlogic:iSR6200:test.1
  2       iqn.1991-05.com.microsoft:qlogic-09sd5i4l
  3       iqn.2004-08.com.qlogic:iSR6200:test.0.20000014c3449afa.22000014c3449
                                                                        afa

Please select a presented target from the list above ('q' to quit):  2

A list of attributes with formatting and current values will follow.
Enter a new value or simply press the ENTER key to accept the current value. If
you wish to terminate this process before reaching the end of the list press
'q' or 'Q' and the ENTER key to do so.

  CHAP (0=Enable, 1=Disable)                    [Disabled] 0
  CHAP Secret (Max = 100 characters)            [        ] ****

  All attribute values for that have been changed will now be saved.
```

## Set Chassis

Sets the chassis name.

**Authority** Admin session

**Syntax** **set chassis**

**Examples** The following example shows the `set chassis` command:

```
iSR6200 <1> (admin) #> set chassis

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  Chassis Name (Max = 64 characters)           [               ] rack 14

  All attribute values that have been changed will now be saved.
```

## Set FC

Configures an FC port.

**Authority** Admin session

**Syntax** **set fc [ <*PORT_NUM*> ]**

**Keywords** **[ <*PORT_NUM*> ]**

The number of the FC port to be configured.

**Examples** The following example shows the `set fc` command:

```
iSR6200 <1> (admin) #> set fc

A list of attributes with formatting and current values will
follow.
Enter a new value or simply press the ENTER key to accept the
current value. If you wish to terminate this process before
reaching the end of the list press 'q' or 'Q' and the ENTER key to
do so.

WARNING:
The following command might cause a loss of connections to both
ports.

  Configuring FC Port: 1
  -------------------------
  Link Rate (0=Auto, 1=1Gb, 2=2Gb)                    [Auto      ]
  Frame Size  (0=512B, 1=1024B, 2=2048B)              [2048      ]
  Execution Throttle (Min=16, Max=256)                [64        ]
  Programmed Connection Option:
  (0=Loop Only, 1=P2P Only, 2=Loop Pref)              [Loop Pref ]

All attribute values for Port 1 that have been changed will now be
saved.

  Configuring FC Port: 2
  -------------------------
  Link Rate (0=Auto, 1=1Gb, 2=2Gb)                    [Auto      ]
  Frame Size  (0=512B, 1=1024B, 2=2048B)              [2048      ]
  Execution Throttle (Min=16, Max=256)                [64        ]
  Programmed Connection Option:
  (0=Loop Only, 1=P2P Only, 2=Loop Pref)              [Loop Pref ]
```

```
All attribute values for Port 2 that have been changed will now be
saved.
```

## Set Features

Applies license keys to the router. The date and time must be set on the router prior to applying a new feature key. (*This option is not currently supported. It will be supported in a future release*.)

**Authority** Admin session

**Syntax** **set features**

## Set iSCSI

Configures an iSCSI port.

**Authority** Admin session

**Syntax** **set iscsi [ <*PORT_NUM*> ]**

**Keywords** **[ <*PORT_NUM*> ]**

The number of the iSCSI port to be configured.

**Examples** The following example shows the `set iscsi` command:

```
iSR6200 <1> (admin) #> set iscsi 1

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  WARNING:
  The following command might cause a loss of connections to both ports.

  Configuring iSCSI Port: 1
  --------------------------
  Port Status (0=Enable, 1=Disable)            [Enabled         ]
  Port Speed (0=Auto, 1=100Mb, 2=1Gb)          [Auto            ]
  MTU Size (0=Normal, 1=Jumbo, 2=Other)        [Normal          ]
  Window Size (Min=8124B, Max=1048576B)        [65536           ]
  IPv4 Address                                 [10.3.5.205      ]
  IPv4 Subnet Mask                             [255.255.255.0   ]
  IPv4 Gateway Address                         [0.0.0.0         ]
  IPv4 TCP Port No. (Min=1024, Max=65535)      [3260            ]
  IPv4 VLAN (0=Enable, 1=Disable)              [Disabled        ]
  IPv6 Address 1                               [::              ]
  IPv6 Address 2                               [::              ]
  IPv6 Default Router                          [::              ]
  IPv6 TCP Port No. (Min=1024, Max=65535)      [3260            ]
  IPv6 VLAN (0=Enable, 1=Disable)              [Disabled        ]
  iSCSI Header Digests (0=Enable, 1=Disable)   [Disabled        ]
  iSCSI Data Digests (0=Enable, 1=Disable)     [Disabled        ]

  All attribute values for Port 1 that have been changed will now be saved.
```

## Set iSNS

Configures iSNS parameters for a blade.

**Authority** Admin session

**Syntax** **set isns**

**Examples** The following example shows the `set isns` command:

```
iSR6200 <2> (admin) #> set isns

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  iSNS (0=Enable, 1=Disable)   [Disabled        ] 0
  iSNS Address (IPv4 or IPv6)  [0.0.0.0         ] 10.3.6.33
  TCP Port No.                 [3205            ]

  All attribute values that have been changed will now be saved.
```

## Set Mgmt

Configures the blade's management port (10/100).

**Authority** Admin session

**Syntax** **set mgmt**

**Examples** The following example shows the `set mgmt` command:

```
iSR6200 <1> (admin) #> set mgmt

A list of attributes with formatting and current values will
follow. Enter a new value or simply press the ENTER key to accept
the current value. If you wish to terminate this process before
reaching the end of the list press 'q' or 'Q' and the ENTER key to
do so.

WARNING:
The following command might cause a loss of connections to the MGMT
port.

  IPv4 Interface (0=Enable, 1=Disable)           [Enabled]
  IPv4 Mode (0=Static, 1=DHCP, 2=Bootp, 3=Rarp)  [Dhcp   ]
  IPv6 Interface (0=Enable, 1=Disable)           [Enabled]
  IPv6 Mode (0=Manual, 1=AutoConfigure)          [Manual ] 1

  All attribute values that have been changed will now be saved.
```

The following example shows how to use the `set mgmt` command to set a static address:

```
iSR6200 <1> (admin) #> set mgmt

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  WARNING:
  The following command might cause a loss of connections to the MGMT port.

  IPv4 Interface (0=Enable, 1=Disable)             [Enabled          ]
  IPv4 Mode (0=Static, 1=DHCP, 2=Bootp, 3=Rarp)    [Static           ]
  IPv4 Address                                     [172.17.136.86    ]
  IPv4 Subnet Mask                                 [255.255.255.0    ]
  IPv4 Gateway                                     [172.17.136.1     ]
```

```
IPv6 Interface (0=Enable, 1=Disable)              [Disabled          ]

All attribute values that have been changed will now be saved.
```

## Set NTP

Configures the NTP parameters.

**Authority** Admin session

**Syntax** **set ntp**

**Examples** The following example shows the `set ntp` command:

```
iSR6200 <1> (admin) #> set ntp

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  NTP (0=Enable, 1=Disable)                          [Disabled  ] 0
  TimeZone Offset from GMT (Min=-12:00,Max=12:00)    [00:00     ] -8:0
  IP Address [1] (IPv4 or IPv6)                      [0.0.0.0   ] 207.126.97.57
  IP Address [2] (IPv4 or IPv6)                      [0.0.0.0   ]
  IP Address [3] (IPv4 or IPv6)                      [0.0.0.0   ]

  All attribute values that have been changed will now be saved.
```

## Set Properties

Configures CLI properties for the blade.

**Authority** Admin session

**Syntax** **set properties**

**Examples** The following example shows the `set properties` command:

```
iSR6200 <1> (admin) #> set properties

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  CLI Inactivty Timer (0=Disable, 1=15min, 2=60min)   [15min   ]
  CLI Prompt (Max=32 Characters)                      [iSR6200 ]

  All attribute values that have been changed will now be saved.
```

## Set SNMP

Configures the general simple network management protocol (SNMP) properties, as well as configuring eight trap destinations.

**Authority** Admin session

**Syntax** **set snmp**
[trap_destinations [ <*DEST_NUM*> ]]

**Keywords** **trap_destinations**
Specifies the setting of the trap destinations.

**Examples** The following example shows the `set snmp` command for setting the general properties:

```
iSR6200 <1> (admin) #> set snmp

A list of attributes with formatting and current values will follow.
Enter a new value or simply press the ENTER key to accept the current value.
If you wish to terminate this process before reaching the end of the list
press 'q' or 'Q' and the ENTER key to do so.

Configuring SNMP :
-----------------
Read Community                              [          ] Public
Trap Community                              [          ] Private
System Location                             [          ]
System Contact                              [          ]
Authentication Traps (0=Enable, 1=Disable)  [Disabled ]

All attribute values that have been changed will now be saved.
```

The following example shows configuring an SNMP trap destination:

```
iSR6200 <1> (admin) #> set snmp trap_destinations

A list of attributes with formatting and current values will follow.
Enter a new value or simply press the ENTER key to accept the current value.
If you wish to terminate this process before reaching the end of the list
press 'q' or 'Q' and the ENTER key to do so.

Configuring SNMP Trap Destination 1 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ] 0
IP Address                                  [0.0.0.0         ] 10.0.0.5
```

```
Destination Port                              [0              ] 1024
Trap Version                                  [0              ] 2

Configuring SNMP Trap Destination 2 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ]
Configuring SNMP Trap Destination 3 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ]
Configuring SNMP Trap Destination 4 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ]
Configuring SNMP Trap Destination 5 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ]
Configuring SNMP Trap Destination 6 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ]
Configuring SNMP Trap Destination 7 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ]
Configuring SNMP Trap Destination 8 :
-------------------------------------
Destination enabled  (0=Enable, 1=Disable)  [Disabled        ]
All attribute values that have been changed will now be saved.
```

## Set System

Configures the blade system-wide parameters.

**Authority** Admin session

**Syntax** **set system**

**Examples** The following example shows the `set system` command:

```
iSR6200 <1> (admin) #> set system

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  WARNING:
  If enabled by operator, the Symbolic Name can be embedded as part of the
  iSCSI Name.  Changes to the iSCSI name will be effective after a reboot.
  Only valid iSCSI name characters will be accepted.  Valid characters include
  alphabetical (a-z, A-Z), numerical (0-9), colon, hyphen, and period.

  Changes to the Settings below will be effective after a reboot.

  System Symbolic Name (Max = 64 characters)          [Blade-1         ]
  Embed Symbolic Name  (0=Enable,1=Disable)           [Disabled        ]
  Mode (0=iSCSI Server Connectivity,
        1=SAN over WAN,
        2=iSCSI Server Connectivity/SAN over WAN,
        3=Data Migration)                             [iSCSI Connectivity]
  Target Presentation Mode (0=Auto, 1=Manual)         [Auto            ]
  Lun Mapping (0=Enable, 1=Disable)                   [Disabled        ]
  Controller Lun AutoMap  (0=Enable, 1=Disable)       [Enabled         ]
  Target Access Control  (0=Enable, 1=Disable)        [Disabled        ]

  All attribute values that have been changed will now be saved.
```

## Set VPGroups

Sets virtual port groups (VPGs) on the blade. Allows you to enable and disable VPGs, and to modify the VPG name.

**Authority** Admin session

**Syntax** **set vpgroups [vpgroup index]**

**Examples** The following example shows how to enable virtual port groups 2 and 3:

```
iSR6200 <1> (admin) #> set vpgroups

  The following wizard will query for attributes before persisting
  and activating the updated mapping in the system configuration.
  If you wish to terminate this wizard before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  Configuring VpGroup: 1
  -------------------------
  Status (0=Enable, 1=Disable)               [Enabled     ]
  VpGroup Name (Max = 64 characters)         [VPGROUP_1   ]

  All attribute values for VpGroup 1 that have been changed will now be saved.

  Configuring VpGroup: 2
  -------------------------
  Status (0=Enable, 1=Disable)               [Disabled    ] 0
  VpGroup Name (Max = 64 characters)         [VPGROUP_2   ]

  All attribute values for VpGroup 2 that have been changed will now be saved.

  Configuring VpGroup: 3
  -------------------------
  Status (0=Enable, 1=Disable)               [Disabled    ] 0
  VpGroup Name (Max = 64 characters)         [VPGROUP_3   ]

  All attribute values for VpGroup 3 that have been changed will now be saved.

  Configuring VpGroup: 4
  -------------------------
  Status (0=Enable, 1=Disable)               [Disabled    ]

  All attribute values for VpGroup 4 that have been changed will now be saved.
```

## Show

Displays blade operational information.

**Authority** None

**Syntax** **show**

chap
chassis
features
fc [*port_num*]
initiators [*fc* or *iscsi*]
initiator_lunmask
memory
iscsi [*port_num*]
isns [*port_num*]
logs [*entries*]
luninfo
luns
lunmask
mgmt
ntp
perf [ byte | init_rbyte | init_wbyte | tgt_rbyte | tgt_wbyte ]
presented_targets [*fc* or *iscsi*]
properties
snmp
stats
targets [*fc* or *iscsi*]
system
vpgroups [vpgroup index]

**Keywords** **chap**

Displays configured CHAP iSCSI nodes. (See “Show CHAP” on page 2-53.)

**chassis**

Displays chassis information and status. (See “Show Chassis” on page 2-54.)

**fc [*port_num*]**

Displays FC port information. (See “Show FC” on page 2-56.)

**features**

Displays licensed features. (See “Show Features” on page 2-57.)

**initiators [*fc* or *iscsi*]**

Displays SCSI initiator information: iSCSI or FC. (See “Show Initiators” on page 2-58.)

**initiators_lunmask**

Displays initiators and the LUNs to which they are mapped. (See “Show Initiators LUN Mask” on page 2-59.)

**iscsi [*port_num*]**

Displays iSCSI port information and configuration. (See “Show iSCSI” on page 2-60.)

**isns [*port_num*]**

Displays the router’s iSCSI name server (iSNS) configuration. (See “Show iSNS” on page 2-62.)

**logs**

Displays the router’s logging information. (See “Show Logs” on page 2-63.)

**luninfo**

Displays complete LUN information for a specified target and LUN. (See “Show LUNinfo” on page 2-64.)

**luns**

Displays LUN information and their targets. (See “Show LUNs” on page 2-65.)

**lunmask**

Displays LUN mappings. (See “Show Lunmask” on page 2-67.)

**memory**

Displays memory usage. (See “Show Memory” on page 2-68.)

**mgmt**

Displays the router’s management port (10/100) configuration. (See “Show Mgmt” on page 2-69.)

**ntp**

Displays the router’s network time protocol (NTP) configuration. (See “Show NTP” on page 2-70.)

**perf [ byte | init_rbyte | init_wbyte | tgt_rbyte | tgt_wbyte ]**

Displays router performance. (See “Show Perf” on page 2-71.)

**presented_targets [*fc* or *iscsi*]**

Displays targets presented by the router: FC, iSCSI, or both. (See “Show Presented Targets” on page 2-73.)

**properties**

Displays router properties. (See “Show Properties” on page 2-75.)

**snmp**

Displays the router’s simple network management protocol (SNMP) properties and trap configurations. (See “Show SNMP” on page 2-76.)

**stats**

Displays the router statistics, both FC and iSCSI. (See “Show Stats” on page 2-77.)

**system**

Displays router product information including serial number, software version, hardware version, configuration, and temperature. (See “Show System” on page 2-81.)

**targets [*fc* or *iscsi*]**

Displays targets discovered by the router: FC, iSCSI, or both. (See “Show Targets” on page 2-82.)

**vpgroups [vpgroup index]**

Displays virtual port groups. (See “Show VPGroups” on page 2-84.)

## Show CHAP

Displays CHAP configuration for iSCSI nodes.

**Authority** None

**Syntax** **show chap**

**Examples** The following example shows the `show chap` command:

```
iSR6200 <1> (admin) #> show chap

The following is a list of iSCSI nodes that have been configured
with CHAP 'ENABLED':

Type      iSCSI Node
--------  ------------
Init      iqn.1991-05.com.microsoft:qlogic-09sd5i4l
```

## Show Chassis

Displays the chassis information and status. This command can be executed from the chassis or blade level.

**Authority** None

**Syntax** **show chassis**

**Examples** The following example shows the `show chassis` command:

```
iSR6200 #> show chassis

  Chassis Information
  ---------------------
  Product Name                  ISR6200
  Chassis Name                  Router Chassis Name Here
  Serial Number                 0834E00019
  HW Version                    20697-03 A
  Fan Speed                     Normal

  Blade 1 Information (Left Slot)
  -------------------------------
  Status                        Online
  Product Name                  iSR6200
  Symbolic Name                 Blade-1
  Serial Number                 0834E00008
  HW Version                    20694-03 A
  SW Version                    3.0.0.5
  Temp (Front/Rear/CPU1/CPU2)   48C/36C/37C/41C

  Power Cooling Module 1
  ----------------------
  Status                        Installed
  Power Source                  Connected
  Fan1/Fan2/Fan3                Healthy/Healthy/Healthy

  Blade 2 Information (Right Slot)
  --------------------------------
  Status                        Online
  Product Name                  iSR6200
  Symbolic Name                 Blade-2
  Serial Number                 0836E00018
  HW Version                    20694-03 A
```

```
SW Version                      3.0.0.5
Temp (Front/Rear/CPU1/CPU2)     46C/34C/38C/38C

Power Cooling Module 2
----------------------
Status                          Installed
Power Source                    Not Connected
Fan1/Fan2/Fan3                  Healthy/Healthy/Healthy
```

## Show FC

Displays FC port information for the specified port. If you do not specify a port, this command displays all ports.

**Authority** None

**Syntax** **show fc [*port_num*]**

**Keywords** **[*port_num*]**

Identifies the number of the FC port to display.

**Examples** The following example shows the `show fc` command:

```
iSR6200 <1> #> show fc 2

  FC Port Information
  ---------------------
  FC Port                          2
  Link Status                      Up
  Current Link Rate                2Gb
  Programmed Link Rate             Auto
  WWNN                             20:00:00:c0:dd:0c:8b:ef
  WWPN                             21:00:00:c0:dd:0c:8b:ef
  Port ID                          00-00-ef
  Firmware Revision No.            3.03.07
  Frame Size                       2048
  Execution Throttle               64
  Connection Mode                  Loop
  Programmed Connection Option     Loop Preferred
```

## Show Features

Displays any features that have been licensed.

**Authority** None

**Syntax** **show features**

**Examples** The following examples shows the `show features` command.

```
iSR6200 <1> #> show features

  No Feature Keys exist in the system.
```

## Show Initiators

Displays SCSI initiator information for iSCSI, FC, or both.

**Authority** None

**Syntax** **show initiators**
fc
iscsi

**Keywords** **fc**
Specifies the display of FC initiators.

**iscsi**
Specifies the display of iSCSI initiators.

**Examples** The following example shows the `show initiators` command:

```
iSR6200 <1> #> show initiators

  Initiator Information
  ----------------------
  Initiator Name   iqn.1991-05.com.microsoft:qlogic-09sd5i4l
  Alias
  IP Address       0.0.0.0
  Status           Logged Out
  OS Type          MS Windows
```

## Show Initiators LUN Mask

Displays all LUNs mapped to a user-selected Initiator.

**Authority** None

**Syntax** **show initiators_lunmask**

**Examples** The following example shows the `show initiators_lunmask` command:

```
iSR6200 <1> #> show initiators_lunmask

  Index    (WWNN,WWPN/iSCSI Name)
  -----    ----------------------
  0        iqn.2000-04.com.qlogic.qle4060c.svr_1

  Please select an Initiator from the list above ('q' to quit):  0

  Target(WWPN)              (LUN/VpGroup)      VendorId
  ------------              -------------      --------
  21:00:00:11:c6:17:12:22   0/VPGROUP_1        SEAGATE
  50:06:01:60:3a:60:0a:63   0/VPGROUP_2
  50:06:01:60:3a:60:0a:63   1/VPGROUP_2
  50:06:01:60:3a:60:0a:63   2/VPGROUP_2
  50:06:01:60:3a:60:0a:63   3/VPGROUP_2
  50:06:01:60:3a:60:0a:63   4/VPGROUP_2
  50:06:01:60:3a:60:0a:63   5/VPGROUP_2
  50:06:01:60:3a:60:0a:63   6/VPGROUP_2
  50:06:01:60:3a:60:0a:63   7/VPGROUP_2
  50:06:01:60:3a:60:0a:63   8/VPGROUP_2
```

## Show iSCSI

Displays iSCSI information for the specified port. If you do not specify the port, this command displays all ports.

**Authority** None

**Syntax** **show iscsi [*port_num*]**

**Keywords** **[*port_num*]**

The number of the iSCSI port to be displayed.

**Examples** The following example shows the `show iscsi` port command:

```
iSR6200 <1> (admin) #> show iscsi

  iSCSI Port Information
  ----------------------
  iSCSI Port                 1
  Port Status                Enabled
  Link Status                Up
  iSCSI Base Name            iqn.2004-08.com.qlogic:iSR6200.0608a00471.0
  MAC Address                00-c0-dd-0c-8b-e2
  IP Address                 0.0.0.0
  Subnet Mask                0.0.0.0
  Gateway IP Address         0.0.0.0
  Firmware Revision No.      3.00.02.44
  No. of Open Connections    0
  Target TCP Port No.        3260
  MTU Size                   Normal
  Window Size                32768
  Window Scaling             Enabled
  Window Scaling Factor      1
  Current Port Speed         1Gb/FDX
  Programmed Port Speed      Auto
  Header Digests             Enabled
  Data Digests               Enabled
  Max Burst                  262144
  Max First Burst            65536
  VLAN                       Disabled
  IPv6 Address 1             ::
  IPv6 Address 2             ::
  IPv6 Link Local            fe80::2c0:ddff:fe0c:8be2
```

```
IPv6 Default Router        ::
IPv6 Target TCP Port No.   3260
IPv6 Window Scaling        Enabled
IPv6 Window Scaling Factor 1
IPv6 VLAN                  Disabled

iSCSI Port                 2
Port Status                Enabled
Link Status                Up
iSCSI Base Name            iqn.2004-08.com.qlogic:iSR6200.0608a00471.1
MAC Address                00-c0-dd-0c-8b-e3
IP Address                 0.0.0.0
Subnet Mask                0.0.0.0
Gateway IP Address         0.0.0.0
Firmware Revision No.      3.00.02.44
No. of Open Connections    0
Target TCP Port No.        3260
MTU Size                   Normal
Window Size                32768
Window Scaling             Enabled
Window Scaling Factor      1
Current Port Speed         1Gb/FDX
Programmed Port Speed      Auto
Header Digests             Enabled
Data Digests               Enabled
Max Burst                  262144
Max First Burst            65536
VLAN                       Disabled
IPv6 Address 1             ::
IPv6 Address 2             ::
IPv6 Link Local            fe80::2c0:ddff:fe0c:8be3
IPv6 Default Router        ::
IPv6 Target TCP Port No.   3260
IPv6 Window Scaling        Enabled
IPv6 Window Scaling Factor 1
IPv6 VLAN                  Disabled
```

## Show iSNS

Displays Internet simple name service (iSNS) configuration information for the specified iSCSI port. If you do not specify the port, this command displays the iSNS configuration information for all iSCSI ports.

**Authority** None

**Syntax** **show isns [*port_num*]**

**Keywords** **[*port_num*]**

The iSCSI port number whose iSNS configuration is to be displayed.

**Examples** The following example shows the `show isns` command:

```
iSR6200 <2> (admin) #> show isns

  iSNS Information
  ----------------
  iSNS            Disabled
  IP Address      0.0.0.0
  TCP Port No.    3205
```

## Show Logs

Displays either all or a portion of the router event log.

**Authority** None

**Syntax** **show logs [*last_x_entries]***

**Keywords** **[*last_x_entries*]**

Shows only the last *x* number of logs entries. For example, `show logs 10` displays the last ten entries in the router event log.

The `show logs` command displays the entire router event log.

**Examples** The following example shows the `show logs` command:

```
iSR6200 <1> #> show logs

  01/01/2008 00:00:13 System     3 Tuesday 01 January  12:13 AM
  01/01/2008 00:00:21 QL4022     3 #0: QLIsrDecodeMailbox: Link up
  01/01/2008 00:00:13 System     3 Tuesday 01 January  12:13 AM
  01/01/2008 00:00:22 QL4022     3 #0: QLIsrDecodeMailbox: Link up
```

## Show LUNinfo

Displays complete information for a specified LUN and target.

**Authority** None

**Syntax** **show luninfo**

**Examples** The following example shows the `show luninfo` command:

```
iSR6200 <1> (admin) #> show luninfo

  Index    (WWNN,WWPN/iSCSI Name)
  -----    ----------------------
  0        20:00:00:11:c6:17:0e:ec,21:00:00:11:c6:17:0e:ec
  1        20:00:00:11:c6:17:0f:0f,21:00:00:11:c6:17:0f:0f
  2        20:00:00:11:c6:17:18:3e,21:00:00:11:c6:17:18:3e
  3        20:00:00:11:c6:17:0e:d9,21:00:00:11:c6:17:0e:d9
  4        20:00:00:11:c6:17:0f:07,21:00:00:11:c6:17:0f:07
  5        20:00:00:11:c6:17:0f:11,21:00:00:11:c6:17:0f:11
  6        20:00:00:11:c6:17:0f:02,21:00:00:11:c6:17:0f:02
  7        20:00:00:11:c6:17:12:77,21:00:00:11:c6:17:12:77

  Please select a Target from the list above ('q' to quit):  0

  LUN   Vendor
  ----  --------
  0     SEAGATE

  Please select a LUN from the list above ('q' to quit):  0

  LUN Information
  -----------------
  WWULN              20:00:00:11:c6:17:0e:ec
  LUN Number         0
  VendorId           SEAGATE
  ProductId          ST336754FC
  ProdRevLevel       XR21
  Portal             0
  Lun Size           35003 MB
  Lun State          Online
```

## Show LUNs

Displays LUN information for each target.

**Authority** None

**Syntax** **show luns**

**Examples** The following example shows the `show luns` command:

```
iSR6200 <1> #> show luns

  Target(WWPN)               VpGroup         LUN  State    VendorId  ProductId
  ============               =======         ===  =====    ========  =========
  20:70:00:c0:ff:d5:8a:9d    VPGROUP_1       0    Online   HP        HP
                             VPGROUP_1       1    Online   HP        HP
                             VPGROUP_1       2    Online   HP        HP
                             VPGROUP_1       3    Online   HP        HP
                             VPGROUP_1       4    Online   HP        HP
                             VPGROUP_1       5    Online   HP        HP
                             VPGROUP_1       6    Online   HP        HP
                             VPGROUP_1       7    Online   HP        HP
                             VPGROUP_1       8    Online   HP        HP
                             VPGROUP_1       9    Online   HP        HP
                             VPGROUP_1       10   Online   HP        HP
                             VPGROUP_1       11   Online   HP        HP
                             VPGROUP_1       12   Online   HP        HP
                             VPGROUP_1       13   Online   HP        HP
                             VPGROUP_1       14   Online   HP        HP
                             VPGROUP_1       15   Online   HP        HP
                             VPGROUP_1       16   Online   HP        HP
                             VPGROUP_2       0    Online   HP        HP
                             VPGROUP_2       1    Online   HP        HP
                             VPGROUP_2       2    Online   HP        HP
                             VPGROUP_2       3    Online   HP        HP
                             VPGROUP_2       4    Online   HP        HP
                             VPGROUP_2       5    Online   HP        HP
                             VPGROUP_2       6    Online   HP        HP
                             VPGROUP_2       7    Online   HP        HP
                             VPGROUP_2       8    Online   HP        HP
                             VPGROUP_2       9    Online   HP        HP
                             VPGROUP_2       10   Online   HP        HP
```

```
VPGROUP_2       11   Online   HP        HP
VPGROUP_2       12   Online   HP        HP
VPGROUP_2       13   Online   HP        HP
VPGROUP_2       14   Online   HP        HP
VPGROUP_2       15   Online   HP        HP
VPGROUP_2       16   Online   HP        HP
```

## Show Lunmask

Displays all initiators mapped to a user-specified LUN.

**Authority** None

**Syntax** **show lunmask**

**Examples** The following example shows the `show lunmask` command:

```
iSR6200 <1> #> show lunmask

  Index    (WWNN,WWPN/iSCSI Name)
  -----    ----------------------
  0        50:00:1f:e1:50:01:11:50,50:00:1f:e1:50:01:11:58
  1        50:00:1f:e1:50:06:9d:20,50:00:1f:e1:50:06:9d:2c

  Please select a Target from the list above ('q' to quit):  0

  LUN   WWULN                                                Vendor
  ----  ----------                                           --------
  0     50:00:1f:e1:50:01:11:50:00:00:00:00:00:00:00:00 COMPAQ
  1     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:9a:00:00 COMPAQ
  2     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:9f:00:00 COMPAQ
  3     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:a2:00:00 COMPAQ
  4     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:a5:00:00 COMPAQ
  5     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:a8:00:00 COMPAQ
  6     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:ab:00:00 COMPAQ
  7     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:ae:00:00 COMPAQ
  8     60:05:08:b4:00:01:1f:60:00:1d:40:00:00:bb:00:00 COMPAQ

  Please select a LUN from the list above ('q' to quit):  1

  Target  50:00:1f:e1:50:01:11:50,50:00:1f:e1:50:01:11:58
  LUN     Initiator
  ---     -----------------
  1       iqn.1991-05.com.microsoft:qlogic-8qdaqlxt
```

## Show Memory

Displays free and total physical system memory and GE port connections. Does not display information about free space in `/var/ftp/`.

**Authority** None

**Syntax** **show memory**

**Examples** The following example shows the `show memory` command:

```
iSR6200 <1> #> show memory

Memory Units         Free/Total
  --------------       ----------
  Physical             415MB/1002MB
  Buffer Pool          6866/8960
  Nic Buffer Pool      0/0
  Process Blocks       8192/8192
  Request Blocks       8192/8192
  Event Blocks         2048/2048
  Control Blocks       2048/2048
  Sessions             2048/2048

  Connections:
  GE1                  256/256
  GE2                  256/256
  GE3                  256/256
  GE4                  256/256
```

## Show Mgmt

Displays the blade's management port (10/100) configuration.

**Authority** None

**Syntax** **show mgmt**

**Examples** The following example shows the `show mgmt` command:

```
iSR6200 <1> (admin) #> show mgmt

  Management Port Information
  ---------------------------
  IPv4 Interface           Enabled
  IPv4 Mode                Dhcp
  IPv4 IP Address          172.17.137.129
  IPv4 Subnet Mask         255.255.254.0
  IPv4 Gateway             172.17.136.1
  IPv6 Interface           Disabled
  Link Status              Up
  MAC Address              00-c0-dd-0c-8b-e1
```

## Show NTP

Displays the router's network time protocol (NTP) configuration.

**Authority** None

**Syntax** **show ntp**

**Examples** The following example shows the `show ntp` command:

```
iSR6200 <1> #> show ntp

  NTP Information
  ----------------
  Mode                      Disabled
  Status                    Offline
  TimeZone Offset (Hours)   0
```

## Show Perf

Displays the port, read, write, initiator, or target performance in bytes per second.

**Authority** None

**Syntax** **show perf [ byte | init_rbyte | init_wbyte | tgt_rbyte | tgt_wbyte ]**

**Keywords**

**byte**
Displays performance data (bytes per second) for all ports.

**init_rbyte**
Displays initiator mode read performance.

**init_wbyte**
Displays initiator mode write performance.

**tgt_rbyte**
Displays target mode read performance.

**tgt_wbyte**
Displays target mode write performance.

## Examples

The following examples show the `show perf` command:

```
iSR6200 <1> #> show perf

  WARNING: Valid data is only displayed for port(s) that are not
           associated with any configured FCIP routes.

  Port    Bytes/s   Bytes/s   Bytes/s   Bytes/s   Bytes/s
  Number  (init_r)  (init_w)  (tgt_r)   (tgt_w)   (total)
  ------  --------  --------  --------  --------  --------
  GE1     0         0         0         0         0
  GE2     0         0         0         0         0
  GE3     0         0         0         0         0
  GE4     0         0         0         0         0
  FC1     0         0         0         0         0
  FC2     0         0         0         0         0

iSR6200 <1> #> show perf byte

  WARNING: Valid data is only displayed for port(s) that are not
           associated with any configured FCIP routes.
```

```
  Displaying bytes/sec (total)...  (Press any key to stop display)

  GE1     GE2     GE3     GE4     FC1     FC2
  ------------------------------------------------
  0       0       0       0       0       0
```

```
iSR6200 <1> #> show perf init_rbyte

  WARNING: Valid data is only displayed for port(s) that are not
           associated with any configured FCIP routes.

  Displaying bytes/sec (initiator mode read)...  (Press any key to
stop display)

  GE1     GE2     GE3     GE4     FC1     FC2
  ------------------------------------------------
  0       0       0       0       0       0
  0       0       0       0       0       0
```

```
iSR6200 <1> #> show perf tgt_wbyte

  WARNING: Valid data is only displayed for port(s) that are not
           associated with any configured FCIP routes.

  Displaying bytes/sec (target mode write)...  (Press any key ato
stop display)

  GE1     GE2     GE3     GE4     FC1     FC2
  ------------------------------------------------
  0       0       0       0       0       0
```

## Show Presented Targets

Displays targets presented by the router: FC, iSCSI, or both.

**Authority** None

**Syntax** **show presented_targets**
fc
iscsi

**Keywords** **fc**

Specifies the display of FC presented targets.

**iscsi**

Specifies the display of iSCSI presented targets.

**Examples** The following example shows the `show presented_targets fc` command:

```
iSR6200 <1> #> show presented_targets fc

  No Presented Targets found.
```

The following example shows the `show presented_targets iscsi` command:

```
iSR6200 <1> #> show presented_targets iscsi

  Presented Target Information
  ----------------------------

  iSCSI Presented Targets
  -----------------------
  Name     iqn.2000-04.com.qlogic:iSR6200:0.50001fe150069d20.50001fe150069d2c
  IP       10.3.5.66
  CHAP     Disabled
  <MAPS TO>
  WWNN     50:00:1f:e1:50:06:9d:20
  WWPN     50:00:1f:e1:50:06:9d:2c

  Name     iqn.2000-04.com.qlogic:iSR6200:1.50001fe150069d20.50001fe150069d2c
  IP       10.3.5.67
  CHAP     Disabled
  <MAPS TO>
  WWNN     50:00:1f:e1:50:06:9d:20
  WWPN     50:00:1f:e1:50:06:9d:2c
```

```
Name     iqn.2000-04.com.qlogic:iSR6200:0.50001fe150011150.50001fe150011158
IP       10.3.5.66
CHAP     Disabled
<MAPS TO>
WWNN     50:00:1f:e1:50:01:11:50
WWPN     50:00:1f:e1:50:01:11:58

Name     iqn.2000-04.com.qlogic:iSR6200:1.50001fe150011150.50001fe150011158
IP       10.3.5.67
CHAP     Disabled
<MAPS TO>
WWNN     50:00:1f:e1:50:01:11:50
WWPN     50:00:1f:e1:50:01:11:58
```

## Show Properties

Displays the router blade CLI properties.

**Authority** None

**Syntax** **show properties**

**Examples** The following example shows the `show properties` command:

```
iSR6200 <1> #> show properties

  CLI Properties
  ----------------
  Inactivty Timer   15 minutes
  Prompt String     iSR6200
```

## Show SNMP

Displays the router's simple network management protocol (SNMP) and any configured traps.

**Authority** None

**Syntax** **show snmp**

**Examples** The following example shows the `show snmp` command:

```
iSR6200 <1> (admin) #> show snmp

  SNMP Configuration
  ------------------
  Read Community                Public
  Trap Community                Private
  System Location
  System Contact
  Authentication traps          Disabled
  System OID                    1.3.6.1.4.1.3873.1.5
  System Description            iSR6200

  Trap Destination 1
  ------------------
  IP Address                    10.0.0.5
  Trap Port                     1024
  Trap Version                  2
```

## Show Stats

Displays the blade statistics: FC and iSCSI.

**Authority** None

**Syntax** **show stats**

**Examples** The following example shows the `show stats` command:

```
iSR6200 <1> #> show stats

  FC Port Statistics
  --------------------
  FC Port                          1
  Interrupt Count                  23
  Target Command Count             0
  Initiator Command Count          0

  FC Port                          2
  Interrupt Count                  1717443350
  Target Command Count             0
  Initiator Command Count          1815115822

  iSCSI Port Statistics
  -----------------------
  iSCSI Port                       1
  Interrupt Count                  3108358287
  Target Command Count             1815115673
  Initiator Command Count          0
  MAC Xmit Frames                  54392137663
  MAC Xmit Byte Count              61199467593726
  MAC Xmit Multicast Frames        0
  MAC Xmit Broadcast Frames        0
  MAC Xmit Pause Frames            0
  MAC Xmit Control Frames          0
  MAC Xmit Deferrals               0
  MAC Xmit Late Collisions         0
  MAC Xmit Aborted                 0
  MAC Xmit Single Collisions       0
  MAC Xmit Multiple Collisions     0
  MAC Xmit Collisions              0
  MAC Xmit Dropped Frames          0
```

```
MAC Xmit Jumbo Frames            0
MAC Rcvd Frames                  42061498217
MAC Rcvd Byte Count              60362392962831
MAC Rcvd Unknown Control Frames  0
MAC Rcvd Pause Frames            0
MAC Rcvd Control Frames          0
MAC Rcvd Dribbles                0
MAC Rcvd Frame Length Errors     0
MAC Rcvd Jabbers                 0
MAC Rcvd Carrier Sense Errors    0
MAC Rcvd Dropped Frames          0
MAC Rcvd CRC Errors              0
MAC Rcvd Encoding Errors         0
MAC Rcvd Length Errors Large     1
MAC Rcvd Small Errors Small      0
MAC Rcvd Multicast Frames        34394
MAC Rcvd Broadcast Frames        33144

iSCSI Port                       2
Interrupt Count                  51604
Target Command Count             0
Initiator Command Count          0
MAC Xmit Frames                  0
MAC Xmit Byte Count              0
MAC Xmit Multicast Frames        0
MAC Xmit Broadcast Frames        0
MAC Xmit Pause Frames            0
MAC Xmit Control Frames          0
MAC Xmit Deferrals               0
MAC Xmit Late Collisions         0
MAC Xmit Aborted                 0
MAC Xmit Single Collisions       0
MAC Xmit Multiple Collisions     0
MAC Xmit Collisions              0
MAC Xmit Dropped Frames          0
MAC Xmit Jumbo Frames            0
MAC Rcvd Frames                  186
MAC Rcvd Byte Count              39260
MAC Rcvd Unknown Control Frames  0
MAC Rcvd Pause Frames            0
```

```
MAC Rcvd Control Frames          0
MAC Rcvd Dribbles                0
MAC Rcvd Frame Length Errors     0
MAC Rcvd Jabbers                 0
MAC Rcvd Carrier Sense Errors    0
MAC Rcvd Dropped Frames          0
MAC Rcvd CRC Errors              0
MAC Rcvd Encoding Errors         0
MAC Rcvd Length Errors Large     0
MAC Rcvd Small Errors Small      0
MAC Rcvd Multicast Frames        94
MAC Rcvd Broadcast Frames        91

iSCSI Shared Statistics
-----------------------
PDUs Xmited                      2729500577
Data Bytes Xmited                55036896842234
PDUs Rcvd                        2655246170
Data Bytes Rcvd                  0
I/O Completed                    1815115669
Unexpected I/O Rcvd              0
iSCSI Format Errors              0
Header Digest Errors             0
Data Digest Errors               0
Sequence Errors                  0
PDU Xmit Count                   2729500577
PDU Xmit Count                   2729500577
PDU Xmit Count                   2729500577
IP Xmit Packets                  54392134283
IP Xmit Byte Count               59132566295008
IP Xmit Fragments                0
IP Rcvd Packets                  42061430681
IP Rcvd Byte Count               58764046068744
IP Rcvd Fragments                0
IP Datagram Reassembly Count     0
IP Error Packets                 0
IP Fragment Rcvd Overlap         0
IP Fragment Rcvd Out of Order    0
IP Datagram Reassembly Timeouts  0
TCP Xmit Segment Count           54392134284
```

```
TCP Xmit Byte Count              57389353022514
TCP Rcvd Segment Count           42061430681
TCP Rcvd Byte Count              57418079800284
TCP Persist Timer Expirations    0
TCP Rxmit Timer Expired          116
TCP Rcvd Duplicate Acks          986657165
TCP Rcvd Pure Acks               816265831
TCP Xmit Delayed Acks            3584507
TCP Rcvd Pure Acks               177811024
TCP Rcvd Segment Errors          0
TCP Rcvd Segment Out of Order    1
TCP Rcvd Window Probes           0
TCP Rcvd Window Updates          18500272
TCP ECC Error Corections         0
```

## Show System

Displays blade product information, including the serial number, hardware and software versions, port quantities, and temperature.

**Authority** None

**Syntax** **show system**

**Examples** The following example shows the `show system` command:

```
iSR6200 <1> #> show system

  System Information
  ------------------
  Product Name                    iSR6200
  Symbolic Name                   Blade 1
  Embed Symbolic Name             Disabled
  System Mode                     iSCSI Server Connectivity
  Target Presentation Mode        Auto
  Lun Mapping                     Enabled
  Controller Lun AutoMap          Enabled
  Target Access Control           Enabled
  Serial Number                   0823E00015
  HW Version                      00000-00
  SW Version                      3.0.1.0rc3f
  Boot Loader Version             0.97.0.0
  No. of FC Ports                 2
  No. of iSCSI Ports              4
  Telnet                          Enabled
  SSH                             Enabled
  Temp (Front/Rear/CPU1/CPU2)     49C/33C/37C/39C
```

## Show Targets

Displays targets discovered by the router: FC, iSCSI, or both.

**Authority** None

**Syntax** **show targets**
fc
scsi

**Keywords** **fc**
Specifies the display of FC targets.

**iscsi**
Specifies the display of iSCSI targets.

**Examples** The following example shows the `show targets fc` command:

```
iSR6200 <1> #> show targets fc

  Target Information
  ------------------
  WWNN          20:00:00:14:c3:3d:d2:bf
  WWPN          22:00:00:14:c3:3d:d2:bf
  Port ID       01-02-31
  State         Online

  WWNN          20:00:00:14:c3:44:9b:86
  WWPN          22:00:00:14:c3:44:9b:86
  Port ID       01-02-32
  State         Online

  WWNN          20:00:00:14:c3:44:9b:9d
  WWPN          22:00:00:14:c3:44:9b:9d
  Port ID       01-02-33
  State         Online

  WWNN          20:00:00:14:c3:44:9a:fa
  WWPN          22:00:00:14:c3:44:9a:fa
  Port ID       01-02-34
  State         Online
```

The following example shows the `show targets iscsi` command:

```
iSR6200 <1> #> show targets iscsi

  No Targets found.
```

## Show VPGroups

Displays information about the blade's configured virtual port groups.

**Authority** None

**Syntax** **show vpgroups [vp index]**

**Keywords** **vp index**

The number (1–4) of the virtual port group to be displayed.

**Examples** The following example shows the `show vpgroups` command for a specific virtual port group:

```
iSR6200 <1> #> show vpgroups 2

  VpGroup Information
  --------------------
  Index                    2
  VpGroup Name             VPGROUP_2
  Status                   Enabled
  WWPNs                    21:01:00:c0:dd:13:16:f8
                           21:01:00:c0:dd:13:16:f9
```

The following example shows the `show vpgroups` command for all virtual port groups:

```
iSR6200 <1> #> show vpgroups

  VpGroup Information
  --------------------
  Index                    1
  VpGroup Name             VPGROUP_1
  Status                   Enabled
  WWPNs                    21:00:00:c0:dd:13:16:f8
                           21:00:00:c0:dd:13:16:f9

  Index                    2
  VpGroup Name             VPGROUP_2
  Status                   Enabled
  WWPNs                    21:01:00:c0:dd:13:16:f8
                           21:01:00:c0:dd:13:16:f9

  Index                    3
  VpGroup Name             VPGROUP_3
```

```
Status                  Enabled
WWPNs                   21:02:00:c0:dd:13:16:f8
                        21:02:00:c0:dd:13:16:f9

Index                   4
VpGroup Name            VPGROUP_4
Status                  Enabled
WWPNs                   21:03:00:c0:dd:13:16:f8
                        21:03:00:c0:dd:13:16:f9
```

## Shutdown

Shuts down the blade.

**Authority** Admin session

**Syntax** **shutdown**

**Examples** The following example shows the `shutdown` command:

```
iSR6200 <1> (admin) #> shutdown

Are you sure you want to shutdown the System (y/n):  n
  Command aborted.
```

## Target

Removes an offline target from the blade's database. Typically, you will use this command to remove targets from the database that are no longer connected to the router.

***NOTE:***

The `target add` command is not currently supported.

**Authority** Admin session

**Syntax** **target**

add

rm

**Keywords** **add**

Not supported

**rm**

Remove a target from the router's target database.

**Examples** The following example shows the `target add` command:

```
iSR6200 <1> (admin) #> target add

Command 'target add' is currently not supported.
```

The following example shows the `target rm` (remove) command:

```
iSR6200 <1> (admin) #> target rm

  Index  State    (WWNN,WWPN/iSCSI Name)
  -----  -----    ----------------------
  0      Offline 20:00:00:14:c3:3d:d2:bf,22:00:00:14:c3:3d:d2:bf
  1      Online  20:00:00:14:c3:44:9b:86,22:00:00:14:c3:44:9b:86
  2      Online  20:00:00:14:c3:44:9b:9d,22:00:00:14:c3:44:9b:9d
  3      Online  20:00:00:14:c3:44:9a:fa,22:00:00:14:c3:44:9a:fa

  Please select an OFFLINE Target from the list above ('q' to
quit):  0

  All attribute values for that have been changed will now be
saved.
```

## Traceroute

Prints the route a network packet takes to reach the destination specified by the user.

**Authority** Admin session

**Syntax** **traceroute**

**Examples** The following example shows the `traceroute` command:

```
iSR6200 <1> (admin) #> traceroute

  A list of attributes with formatting and current values will follow.
  Enter a new value or simply press the ENTER key to accept the current value.
  If you wish to terminate this process before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  IP Address (IPv4 or IPv6)                 [0.0.0.0] 172.35.14.17
  Outbound Port (0=Mgmt, 1=GE1, 2=GE2, ...) [Mgmt   ] 0

  Tracing route to 172.35.14.17 over a maximum of 30 hops:

   1  172.17.136.2        0.4ms       0.3ms       0.5ms
   2  10.7.9.5            1.1ms       1.1ms       1.1ms
   3  172.21.130.233      2.7ms       2.7ms       2.6ms
   4  172.21.4.245        291.4ms     291.4ms     291.4ms
   5  172.21.4.246        413.6ms     417.1ms     439.2ms
   6  10.35.9.1           459.1ms     465.6ms     480.0ms
   7  172.35.14.17        495.3ms     483.0ms     505.9ms

  Traceroute completed in 7 hops.
```

# 3 Configuring CHAP

In *challenge handshake authentication protocol* (CHAP), the authentication agent sends the client program an ID value and a random value that is used only once. Both the sender and peer share a predefined secret. The peer concatenates the random value, the ID, and the secret. Then it calculates a one-way hash using MD5 (Message-Digest algorithm 5). The peer sends the hash value to the authenticator, which in turn builds that same string on its side, calculates the MD5 checksum, and compares the result with the value received from the peer. If the values match, the peer is authenticated.

By transmitting only the hash, the secret cannot be reverse-engineered. The algorithm increases the ID value with each CHAP dialog to protect against replay attacks.

This chapter provides the procedures for configuring CHAP from the command line interface (CLI), including:


- "Discovery Session—Bi-directional CHAP" on page 3-2
- "Discovery Session—Uni-directional CHAP" on page 3-3
- "Normal Session—Bi-directional CHAP" on page 3-4
- "Normal Session—Uni-directional CHAP" on page 3-5

# Discovery Session—Bi-directional CHAP

Follow this procedure to configure a bi-directional (BIDI) CHAP used during a discovery session.

**To configure a BIDI CHAP in a discovery session:**

1. On the router, follow these steps:
   a. Enable CHAP on the port.
   b. Create a secret (for example, *secret_port).*
   c. Using the `set chap` command, choose the iSCSI node that represents the GE port.
   d. To find the iSCSI node name of the GE port, execute the `show iscsi` command.
2. To add the initiator that is about to do discovery, execute the `initiator add` command as follows:
   a. Enable the CHAP for this initiator.
   b. Create a secret (for example, *secret_initiator*).
   c. To update the CHAP settings of the initiator, execute the `set chap` command.
3. Go to the Microsoft iSCSI (MS) Initiator and follow these steps:
   a. Click **General**.
   b. Click **Secret** (in the middle of the screen). If this is the first time you are setting secrets, reset all secrets.
   c. Type the secret (*secret_port*) that you created in Step 1.
4. Click **Discovery**.
5. Click **Add**.
6. Type the address of the iSCSI port of the router.
7. Click **Advanced**.
8. Select **Chap Login Information**.
9. Type the secret (*secret_initiator*) you created in Step 2 into **Target Secret**.
10. Select **Mutual Authentication**.
11. Click **OK**.
12. Click **OK**.

    The initiator completes the discovery.

# Discovery Session—Uni-directional CHAP

Follow this procedure to configure a uni-directional CHAP used during a discovery session.

**To configure a uni-directional CHAP in a discovery session:**

1. Do not enable CHAP on the ISCSI port.
2. Execute the `initiator add` command as follows:
   a. Add the initiator that is about to perform the discovery.
   b. Enable the CHAP for this initiator.
   c. Create a secret (for example, *secret_initiator*).
   d. Use **Set Chap** to update the initiator's CHAP settings.
3. Go to the MS Initiator.
4. Click **Discovery**.
5. Click **Add**.
6. Type the address of the iSCSI port of the router.
7. Click **Advanced**.
8. Select **Chap Login Information**.
9. In **Target Secret**, type the secret (*secret_initiator*) you created in Step 2.
10. Click **OK**.
11. Click **OK**.

    The initiator completes the discovery.

# Normal Session—Bi-directional CHAP

Follow this procedure to configure a bi-directional (BIDI) CHAP used during a normal session.

**To configure BIDI CHAP in a normal session:**

1. On the router, follow these steps.
   a. Enable CHAP on the presented target to which the initiator will login.
   b. Create a secret (for example, *secret_target*).
   c. Use **Set CHAP**.
2. To add the initiator that is about to do a normal login, execute the `initiator add` command as follows:
   a. Enable the CHAP for this initiator.
   b. Create a secret (for example, *secret_initiator)*.
   c. To update the CHAP settings of the initiator, execute the `set chap` command.
3. Go to the MS Initiator and follow these steps:
   a. Click **General**.
   b. Click **Secret** (in the middle of the screen).
   c. If this is the first time you are setting secrets, reset all the secrets.
   d. Type the secret (*secret_target*) that you created in Step 1.
4. Click **Targets**.
5. Select the target you want to log in to.
6. Click **Advanced**.
7. Select **Chap Login Information**.
8. In **Target Secret**, type the secret *(secret_initiator*) that you created in Step 2.
9. Select **Mutual Authentication**.
10. Click **OK.**
11. Click **OK**.

    The initiator completes the normal login.

# Normal Session—Uni-directional CHAP

Follow this procedure to configure a uni-directional CHAP used during a normal session.

**To configure uni-directional CHAP in a normal session:**

1. Do not enable CHAP on the presented target.
2. Execute the `initiator add` command as follows:
   a. Add the initiator that is about to do a normal login.
   b. Enable the CHAP for this initiator.
   c. Create a secret (for example, *secret_initiator*).
   d. To update the CHAP settings of the initiator, execute the `set chap` command.
3. Go to the MS Initiator.
4. Click **Targets**.
5. Select the target you want to log into.
6. Click **Advanced**.
7. Select **Chap Login Information**.
8. In **Target Secret**, type the secret (*secret_initiator*) that you created in Step 2.
9. Click **OK**.
10. Click **OK**.

    The initiator completes the normal login.

## Notes

# 4 Virtual Port Groups

Some virtualized storage arrays limit the number of LUNs exposed to a host to 256 LUNs. In order to access more than 256 LUNs per target, each iSR6200 blade supports up to four *virtual port groups* (VPGs). If you want your iSCSI hosts to have access to a total of more than 256 distinct LUNS from a given FC target array, you must enable and configure additional virtual port groups.

Each blade has VPG 0 enabled by default; VPG 0 is the primary virtual port group and cannot be disabled. Enabling extra virtual port groups will create additional logical FC adapter initiator ports on the fabric. These ports act as separate FC adapter host ports, and an additional 256 LUNs can be presented to each of them. With all four VPGs enabled, a single iSR6200 blade can access up to1,024 LUNs from a single target world wide port number (WWPN).

This chapter provides the following VPG information:


- "Displaying Virtual Port Groups" on page 4-2
- "Enabling Virtual Port Groups" on page 4-3

# Displaying Virtual Port Groups

To display virtual port group information, use the `show vpgroups` command in the CLI. For example:

```
iSR6200 <1> (admin) #> show vpgroups

  VpGroup Information
  --------------------
  Index                    1
  VpGroup Name             VPGROUP_1
  Status                   Enabled
  WWPNs                    21:00:00:c0:dd:13:16:f8
                           21:00:00:c0:dd:13:16:f9

  Index                    2
  VpGroup Name             VPGROUP_2
  Status                   Disabled
  WWPNs                    N/A

  Index                    3
  VpGroup Name             VPGROUP_3
  Status                   Disabled
  WWPNs                    N/A

  Index                    4
  VpGroup Name             VPGROUP_4
  Status                   Disabled
  WWPNs                    N/A
```

# Enabling Virtual Port Groups

You can enable or disable virtual port groups on your blade using either the graphical user interface (GUI) or the CLI. In the CLI, use the `set vpgroups` command.

The following example shows how to enable virtual port groups 2 and 3.

```
iSR6200 <1> (admin) #> set vpgroups

  The following wizard will query for attributes before persisting
  and activating the updated mapping in the system configuration.
  If you wish to terminate this wizard before reaching the end of the list
  press 'q' or 'Q' and the ENTER key to do so.

  Configuring VpGroup: 1
  ------------------------
  Status (0=Enable, 1=Disable)               [Enabled     ]
  VpGroup Name (Max = 64 characters)         [VPGROUP_1   ]

  All attribute values for VpGroup 1 that have been changed will now be saved.

  Configuring VpGroup: 2
  ------------------------
  Status (0=Enable, 1=Disable)               [Disabled    ] 0
  VpGroup Name (Max = 64 characters)         [VPGROUP_2   ]

  All attribute values for VpGroup 2 that have been changed will now be saved.

  Configuring VpGroup: 3
  ------------------------
  Status (0=Enable, 1=Disable)               [Disabled    ] 0
  VpGroup Name (Max = 64 characters)         [VPGROUP_3   ]

  All attribute values for VpGroup 3 that have been changed will now be saved.

  Configuring VpGroup: 4
  ------------------------
  Status (0=Enable, 1=Disable)               [Disabled    ]

  All attribute values for VpGroup 4 that have been changed will now be saved.
```

The following example shows the output from the CLI for an iSR6200 blade with three virtual port groups enabled. You can display information about the virtual port groups configured on your iSR6200 with the `show vpgroups` command:

```
iSR6200 <1> (admin) #> show vpgroups

  VpGroup Information
  ---------------------
  Index                    1
  VpGroup Name             VPGROUP_1
  Status                   Enabled
  WWPNs                    21:00:00:c0:dd:13:16:f8
                           21:00:00:c0:dd:13:16:f9

  Index                    2
  VpGroup Name             VPGROUP_2
  Status                   Enabled
  WWPNs                    21:01:00:c0:dd:13:16:f8
                           21:01:00:c0:dd:13:16:f9

  Index                    3
  VpGroup Name             VPGROUP_3
  Status                   Enabled
  WWPNs                    21:02:00:c0:dd:13:16:f8
                           21:02:00:c0:dd:13:16:f9

  Index                    4
  VpGroup Name             VPGROUP_4
  Status                   Disabled
  WWPNs                    N/A
```

Note that in the world wide port number (WWPN), the second byte from the left (for example, `21:01:00:c0:dd:13:16:f8`) denotes the virtual port group ID, and the right most byte (for example, `21:01:00:c0:dd:13:16:f8`) denotes the physical FC port. In this example VPGs 1 through 3 have corresponding virtual ports with 00, 01, and 02 presented out of physical FC ports 0 and 1, with WWPNs ending in **`f8`** and **`f9`**, respectively.

The following example shows the same information grouped by physical FC port.

```
iSR6200 <1> (admin) #> show fc

  FC Port Information
  ---------------------
  FC Port                          1
  Port Status                      Enabled
  Link Status                      Up
  Current Link Rate                4Gb
  Programmed Link Rate             Auto
  WWNN                             20:00:00:c0:dd:13:16:f8 (VPGROUP_1)
  WWPN                             21:00:00:c0:dd:13:16:f8 (VPGROUP_1)
  Port ID                          0a-04-00 (VPGROUP_1)
  WWNN                             20:01:00:c0:dd:13:16:f8 (VPGROUP_2)
  WWPN                             21:01:00:c0:dd:13:16:f8 (VPGROUP_2)
  Port ID                          0a-04-01 (VPGROUP_2)
  WWNN                             20:02:00:c0:dd:13:16:f8 (VPGROUP_3)
  WWPN                             21:02:00:c0:dd:13:16:f8 (VPGROUP_3)
  Port ID                          0a-04-02 (VPGROUP_3)
  Firmware Revision No.            4.05.00
  Frame Size                       2048
  Execution Throttle               32768
  Connection Mode                  Point-to-Point
  Programmed Connection Option     Loop Preferred
  SFP Type                         8Gb

  FC Port                          2
  Port Status                      Enabled
  Link Status                      Up
  Current Link Rate                4Gb
  Programmed Link Rate             Auto
  WWNN                             20:00:00:c0:dd:13:16:f9 (VPGROUP_1)
  WWPN                             21:00:00:c0:dd:13:16:f9 (VPGROUP_1)
  Port ID                          0a-05-00 (VPGROUP_1)
  WWNN                             20:01:00:c0:dd:13:16:f9 (VPGROUP_2)
  WWPN                             21:01:00:c0:dd:13:16:f9 (VPGROUP_2)
  Port ID                          0a-05-01 (VPGROUP_2)
  WWNN                             20:02:00:c0:dd:13:16:f9 (VPGROUP_3)
  WWPN                             21:02:00:c0:dd:13:16:f9 (VPGROUP_3)
  Port ID                          0a-05-02 (VPGROUP_3)
```

```
  Firmware Revision No.            4.05.00
  Frame Size                       2048
  Execution Throttle               32768
  Connection Mode                  Point-to-Point
  Programmed Connection Option     Loop Preferred
  SFP Type                         8Gb

iSR6200 <1> (admin) #>
```

Again, notice in the preceding example that the VP index is in the second byte from the left, and the FC port indicator is in the right most byte.

# A Simple Network Management Protocol

*Simple network management protocol* (SNMP) provides monitoring and trap functions for managing the router through third-party applications that support SNMP. The router firmware supports SNMP versions 1 and 2 and a QLogic management information base (MIB) (see page A-4). You may format traps using SNMP version 1 or 2.

This appendix provides the following SNMP information for the iSR6200:


- "SNMP Parameters" on page A-2
- "SNMP Trap Configuration" on page A-3
- "Management Information Base (MIB)" on page A-4
- "Notifications" on page A-19

# SNMP Parameters

You can set the SNMP parameters using the CLI. (For command details, see “Set SNMP” on page 2-46.)

Table A-1 describes the SNMP parameters.

***Table A-1. SNMP Parameters***

| Parameter | Description |
|---|---|
| `Read community` | A password that authorizes an SNMP management server to read information from the router. This is a write-only field. The value on the router and the SNMP management server must be the same. The read community password can be up to 32 characters, excluding the number sign (#), semicolon (;), and comma (,). The default is password is *private*. |
| `Trap community` | A password that authorizes an SNMP management server to receive traps. This is a write-only field. The value on the router and the SNMP management server must be the same. The trap community password can be up to 32 characters, excluding the number sign (#), semicolon (;), and comma (,). The default password is *private*. |
| `System location` | Specifies the name of the router location. The name can be up to 64 characters, excluding the number sign (#), semicolon (;), and comma (,). The default is undefined. |
| `System contact` | Specifies the name of the person to be contacted to respond to trap events. The name can be up to 64 characters, excluding the number sign (#), semicolon (;), and comma (,). The default is undefined. |
| `Authentication traps` | Enables or disables the generation of authentication traps in response to authentication failures. The default is *disabled*. |

# SNMP Trap Configuration

SNMP trap configuration lets you set up to eight trap destinations. Choose from Traps 1–Trap 8 to configure each trap. Table A-2 describes the parameters for configuring an SNMP trap.

***Table A-2. SNMP Trap Configuration Parameters***

| Parameter | Description |
|---|---|
| `Trap` *n* `enabled` | Enables or disables trap *n*. If disabled, the trap is not configured. |
| `Trap address`* | Specifies the IP address to which the SNMP traps are sent. A maximum of eight trap addresses are supported. The default address for traps is `0.0.0.0`. |
| `Trap port`* | Port number on which the trap is sent. The default is `162`. If the trap destination is not enabled, then this value is `0` (zero). Most SNMP managers and management software listen on this port for SNMP traps. |
| `Trap version` | Specifies the SNMP version (`1` or `2`) with which to format traps. |

Table Note

* Trap address (other than `0.0.0.0`.) and trap port combinations must be unique. For example, if trap 1 and trap 2 have the same address, then they must have different port values. Similarly, if trap 1 and trap 2 have the same port value, they must have different addresses.

# Management Information Base (MIB)

This section describes the QLogic management information base (MIB). The MIB includes the following tables:


- "Network Port Table" on page A-4
- "FC Port Table" on page A-7
- "Initiator Object Table" on page A-9
- "LUN Table" on page A-12
- "VP Group Table" on page A-14
- "Sensor Table" on page A-16


## Network Port Table

The network port table contains a list of network ports that are operational on the router. The entries in this table include the management port (labeled MGMT), and the Gigabit Ethernet ports (labeled GE1 and GE2). For details, see the *iSR6200 Router Installation Guide*.

**qsrNwPortTable**

**Syntax** `SEQUENCE OF QsrNwPortEntry`

**Access** Not accessible

**Description** Entries in this table include the management port, and the iSCSI ports on the router.

**qsrNwPortEntry**

**Syntax** `QsrNwPortEntry`

**Access** Not accessible

**Description** Each entry (row) contains information about a specific network port.

A network port entry consists of the following sequence of objects:

```
qsrNwPortRole          QsrPortRole
qsrNwPortIndex         unsigned32
qsrNwPortAddressMode   INTEGER
qsrIPAddressType       InetAddressType
qsrIPAddress           InetAddress
qsrNetMask             InetAddress
qsrGateway             InetAddress
qsrMacAddress          MacAddress
qsrNwLinkStatus        QsrLinkStatus
qsrNwLinkRate          QsrLinkRate
```

### qsrNwPortRole

**Syntax** `QsrPortRole`

**Access** Not accessible

**Description** Operational role of this port: management port or iSCSI port.

### qsrNwPortIndex

**Syntax** `Unsigned32`

**Access** Not accessible

**Description** A positive integer indexing each network port in a given role.

### qsrNwPortAddressMode

**Syntax** `INTEGER`
`1` = Static
`2` = DHCP
`3` = Bootp
`4` = RARP

**Access** Read-only

**Description** Method by which the port gets its IP address.

**qsrIPAddressType**

**Syntax** `InetAddressType`

**Access** Read-only

**Description** IP address type: `ipv4` or `ipv6`.

**qsrIPAddress**

**Syntax** `InetAddress`

**Access** Read-only

**Description** IP address of the port.

**qsrNetMask**

**Syntax** `InetAddress`

**Access** Read-only

**Description** Subnet mask for this port.

**qsrGateway**

**Syntax** `InetAddress`

**Access** Read-only

**Description** Gateway for this port.

**qsrMacAddress**

**Syntax** `IMacAddress`

**Access** Read-only

**Description** MAC address for this port.

**qstNwLinkStatus**

**Syntax** `QsrLinkStatus`

**Access** Read-only

**Description** Operational link status for this port.

**qsrNwLinkRate**

**Syntax** `QsrLinkRate`

**Access** Read-only

**Description** Operational link rate for this port.

## FC Port Table

This table contains a list of the Fibre Channel (FC) ports on the router. There are as many entries in this table as there are FC ports on the router.

**qsrFcPortTable**

**Syntax** `SEQUENCE OF QsrFcPortEntry`

**Access** Not accessible

**Description** A list of the FC ports on the router.The table contains as many entries as there are FC ports on the router.

**qsrFcPortEntry**

**Syntax** `QsrFcPortEntry`

**Access** Not accessible

**Description** Each entry (row) contains information about a specific FC port.

An FC port entry consists of the following sequence of objects

```
qsrFcPortRole      QsrPortRole
qsrFcPortIndex     Unsigned32
qsrFcPortNodeWwn   PhysAddress
qsrFcPortWwn       PhysAddress
qsrFcPortId        PhysAddress
qsrFcPortType      Unsigned32
qsrFcLinkStatus    QsrLinkStatus
qsrFcLinkRate      QsrLinkRate
```

**qsrFcPortRole**

**Syntax** `QsrPortRole`

**Access** Not accessible

**Description** Operational role of this port: FCP mode or frame shuttle mode.

**qsrFcPortIndex**

**Syntax** `Unsigned32`

**Access** Not accessible

**Description** A positive integer indexing each FC port in a given role.

**qsrFcPortNodeWwn**

**Syntax** `PhysAddress`

**Access** Read-only

**Description** World wide name of the node that contains this port.

**qsrFcPortWwn**

**Syntax** `PhysAddress`

**Access** Read-only

**Description** World wide name for this port.

**qsrFcPortId**

**Syntax** `PhysAddress`

**Access** Read-only

**Description** Interface's 24-bit FC address identifier.

**qsrFcPortType**

**Syntax** `Unsigned32`

**Access** Read-only

**Description** Type of FC port, as indicated by the use of the appropriate value assigned by IANA. The IANA-maintained registry for FC port types is located here:

www.iana.org/assignments/fc-port-types

**qsrFcLinkStatus**

**Syntax** `QsrLinkStatus`

**Access** Read-only

**Description** Current link status for this port.

**qsrFcLinkRate**

**Syntax** `QsrLinkRate`

**Access** Read-only

**Description** Current link rate for this port.

## Initiator Object Table

The initiator object table is a list of the iSCSI initiators that have been discovered by the router. There are as many entries in this table as there are iSCSI initiators on the router.

**qsrIsInitTable**

**Syntax** `SEQUENCE OF QsrIsInitEntry`

**Access** Not accessible

**Description** Entries in this table contain Information about initiators.

### qsrIsInitEntry

**Syntax** `QsrIsInitEntry`

**Access** Not accessible

**Description** Each entry (row) contains information about a specific iSCSI initiator.

iSCSI initiator information entry consists of the following sequence of the object:

```
qsrIsInitIndex       Unsigned32,
qsrIsInitName        SnmpAdminString,
qsrIsInitAlias       SnmpAdminString,
qsrIsInitAddressType InetAddressType,
qsrIsInitAddress     InetAddress,
qsrIsInitStatus      INTEGER,
qsrIsInitOsType      SnmpAdminString,
qsrIsInitChapEnabled INTEGER
```

### qsrIsInitIndex

**Syntax** `Unsigned32`

**Access** Not accessible

**Description** An arbitrary positive integer denoting each iSCSI initiator discovered by the router.

### qsrIsInitName OBJECT-TYPE

**Syntax** `SnmpAdminString`

**Access** Not accessible

**Description** iSCSI name of the initiator.

### qsrIsInitAlias OBJECT-TYPE

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** Alias for the iSCSI initiator.

**qsrIsInitAddressType**

**Syntax** `InetAddressType`

**Access** Read-only

**Description** Type of iSCSI initiator's IP address (IPv4 or IPv6).

**qsrIsInitAddress**

**Syntax** `InetAddress`

**Access** Read-only

**Description** IP address of the iSCSI initiator.

**qsrIsInitStatus**

**Syntax** `Integer:`
`1` = unknown,
`2` = loggedIn,
`3` = loggedOut,
`4` = recovery

**Access** Read-only

**Description** Status of the iSCSI initiator, that is, whether or not it is logged in to the router.

**qsrIsInitOsType**

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** The type of the iSCSI initiator's operating system.

**qsrIsInitChapEnabled**

**Syntax** `Integer: 0` = enabled; `2` = disabled

**Access** Read-only

**Description** A value indicating whether CHAP is enabled or not for this iSCSI initiator.

# LUN Table

These tables contains information about the logical unit number (LUN) list.

**qsrLunTable**

**Syntax** `SEQUENCE OF QsrLunEntry`

**Access** Not accessible

**Description** A list of the LUNs on the FC targets discovered by the router. There are as many entries in this table as there are FC targets on the router.

**qsrLunEntry**

**Syntax** `QsrLunEntry`

**Access** Not accessible

**Description** Each entry (row) contains information about a specific LUN.This table extends `scsiDscLunTable` in `QLOGIC-SCSI-MIB`. The entries in this table show other attributes of the LUN.

The `QsrLunEntry` contains of following sequences of objects.

```
qsrLunWwuln          PhysAddress,
qsrLunVendorId       SnmpAdminString,
qsrLunProductId      SnmpAdminString,
qsrLunProdRevLevel   SnmpAdminString,
qsrLunSize           Unsigned32,
qsrLunState          INTEGER,
qsrLunVPGroupid      INTEGER,
qsrLunVPGroupname    SnmpAdminString
```

**qsrLunWwuln**

**Syntax** `PhysAddress`

**Access** Read-only

**Description** The worldwide unique LUN name (WWULN) for the LUN.

**qsrLunVendorId**

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** Vendor ID for the LUN.

**qsrLunProductId**

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** Product ID for the LUN.

**qsrLunProdRevLevel**

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** Product revision level for the LUN.

**qsrLunSize OBJECT-TYPE**

**Syntax** `Unsigned32`

**Units** Megabytes

**Access** Read-only

**Description** Size of the LUN (in megabytes).

**qsrLunState**

**Syntax** `Integer`
`1` = online,
`2` = offline,
`3` = reserved

**Access** Read-only

**Description** State of the LUN (online or offline).

**qsrLunVPGroupid**

**Syntax** `Integer`

**Access** Read-only

**Description** ID of the VP group to which this LUN belongs.

**qsrLunVPGroupname OBJECT-TYPE**

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** VP group name to which this LUN belongs.

# VP Group Table

This table contains a list of virtual port groups (VPGs). There are four entries in this table at any point of time.

**qsrVPGroupTable**

**Syntax** `SEQUENCE OF QsrVPGroupEntry`

**Access** Not accessible

**Description** Table for the VP group.

**qsrVPGroupEntry OBJECT-TYPE**

**Syntax** `QsrVPGroupEntry`

**Access** Not accessible

**Description** Each entry in the VP group table.

**Index**

```
 { qsrVPGroupIndex }
::= { qsrVPGroupTable 1 }
```

The **QsrVPGroupEntry** contains the following sequence of objects:

```
qsrVPGroupIndex     Unsigned32,
qsrVPGroupId        INTEGER,
qsrVPGroupName      SnmpAdminString,
qsrVPGroupWWNN      VpGroupWwnnAndWwpn,
qsrVPGroupWWPN      VpGroupWwnnAndWwpn,
qsrVPGroupStatus    INTEGER
```

### qsrVPGroupIndex OBJECT-TYPE

**Syntax** `Unsigned32`

**Access** Read-only

**Description** VP group index.

### qsrVPGroupId OBJECT-TYPE

**Syntax** `Integer`

**Access** Read-only

**Description** VP group ID.

### qsrVPGroupName

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** VP group name or host group name.

### qsrVPGroupWWNN

**Syntax** `VpGroupWwnnAndWwpn`

**Access** Read-only

**Description** Worldwide node name (WWNN) for VP group.

**qsrVPGroupWWPN OBJECT-TYPE**

| | |
|---|---|
| **Syntax** | `VpGroupWwnnAndWwpn` |
| **Access** | Read-only |
| **Description** | Worldwide port number (WWPN). |

**qsrVPGroupStatus OBJECT-TYPE**

| | |
|---|---|
| **Syntax** | `Integer`: `0` = enabled; `1` = disabled |
| **Max-Access** | Read-only |
| **Description** | Maintain the status of the VP group (enabled/disabled) |

## Sensor Table

The sensor table lists all the sensors on the router. Each table row specifies a single sensor.

**qsrSensorTable**

| | |
|---|---|
| **Syntax** | `SEQUENCE OF QsrSensorEntry` |
| **Access** | Not accessible |
| **Description** | List of all the sensors on the router. The table contains as many entries (rows) as there are sensors. |

**qsrSensorEntry**

| | |
|---|---|
| **Syntax** | `QsrSensorEntry` |
| **Access** | Not accessible |
| **Description** | Each entry (row) corresponds to a single sensor. |

A sensor entry consists of the following sequence of objects:

```
qsrSensorType        INTEGER
qsrSensorIndex       Unsigned32
qsrSensorUnits       INTEGER
qsrSensorValue       Integer32
qsrUpperThreshold    Integer32
qsrLowerThreshold    Integer32
qsrSensorState       INTEGER
```

**qsrSensorType**

**Syntax** `INTEGER`
Temperature = `1`

**Access** Not accessible

**Description** Type of data being measured by this sensor.

**qsrSensorIndex**

**Syntax** `Unsigned32`

**Access** Not accessible

**Description** A positive integer identifying each sensor of a given type.

**qsrSensorUnits**

**Syntax** `INTEGER`
Celsius = `1`

**Access** Read-only

**Description** Unit of measurement for the sensor.

**qsrSensorValue**

**Syntax** `Integer32`

**Access** Read-only

**Description** Current value of the sensor.

**qsrUpperThreshold**

**Syntax** `Integer32`

**Access** Read-only

**Description** Upper-level threshold for this sensor.

**qsrLowerThreshold**

**Syntax** `Integer32`

**Access** Read-only

**Description** Lower-level threshold for this sensor.

**qsrSensorState**

**Syntax** `INTEGER`

**Access** Read-only

**Description** State of this sensor, indicating the health of the system:
`Unknown` = The sensor value/thresholds cannot be determined.
`Normal` = The sensor value is within normal operational limits.
`Warning` = The sensor value is approaching a threshold.
`Critical` = The sensor value has crossed a threshold.

# Notifications

The router provides the following notification types described in this section:


- "System Information Objects" on page A-19
- "Notification Objects" on page A-20
- "Agent Startup Notification" on page A-21)
- "Agent Shutdown Notification" on page A-21
- "Network Port Down Notification" on page A-21
- "FC Port Down Notification" on page A-22
- "Target Device Discovery" on page A-22
- "Target Presentation (Mapping)" on page A-22
- "VP Group Notification" on page A-23
- "Sensor Notification" on page A-23
- "Generic Notification" on page A-24


***NOTE:***

Every notification uses `qsrBladeSlot` as one of the objects. This determines the originator blade for the same notification.

## System Information Objects

The system information objects provide the system serial number, version numbers (hardware/software/agent), and number of ports (FC/GE).

**qsrSerialNumber**

| | |
|---|---|
| **Syntax** | `SnmpAdminString` |
| **Access** | Read-only |
| **Description** | System serial number. |

**qsrHwVersion**

| | |
|---|---|
| **Syntax** | `SnmpAdminString` |
| **Access** | Read-only |
| **Description** | System hardware version number. |

**qsrSwVersion**

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** System software (firmware) version number.

**qsrNoOfFcPorts**

**Syntax** `Unsigned32`

**Access** Read-only

**Description** Quantity of FC ports on the system.

**qsrNoOfGbEPorts**

**Syntax** `Unsigned32`

**Access** Read-only

**Description** Quantity of gigabit Ethernet ports on the system.

**qsrAgentVersion**

**Syntax** `SnmpAdminString`

**Access** Read-only

**Description** Version number of the agent software on the system.

# Notification Objects

This section defines the objects used in notifications.

**qsrEventSeverity**

**Syntax** `INTEGER`

**Access** Accessible for notify

**Description** Indicates the severity of the event. The value *clear* specifies that a condition that caused an earlier trap is no longer present.

**qsrEventDescription**

**Syntax** `SnmpAdminString`

**Access** Accessible for notify

**Description** A textual description of the event that occurred.

**qsrEventTimeStamp**

**Syntax** `DateAndTime`

**Access** Accessible for notify

**Description** Indicates when the event occurred.

## Agent Startup Notification

The agent startup notification indicates that the agent on the router has started running.

**`qsrAgentStartup`** uses the following object:

- `qsrEventTimeStamp`

## Agent Shutdown Notification

The agent shutdown notification indicates that the agent on the router is shutting down.

**`qsrAgentShutdown`** uses the following object:

- `qsrEventTimeStamp`

## Network Port Down Notification

The network port down notification indicates that the specified network port is **`down`**. The next time the port comes up, this event is sent with the `qsrEventSeverity` object set to **`clear`**.

**`qsrNwPortDown`** uses the following objects:

- `qsrNwLinkStatus`
- `qsrEventTimeStamp`
- `qsrEventSeverity`

Network notifications are sent for the following events:

- Management port: down or up
- iSCSI port: down or up
- Port number (1–4)

## FC Port Down Notification

The FC port down notification indicates that the specified FC port is `down`. The next time the port comes up, this event is sent with the `qsrEventSeverity` object set to `clear`.

**`qsrFcPortDown`** uses the following objects:

- `qsrFcLinkStatus`
- `qsrEventTimeStamp`
- `qsrEventSeverity`

FC notifications are sent for the following events:

- Fibre Channel port: down or up
- Port number (1–4)

## Target Device Discovery

The Fibre Channel target device discovery notification indicates that the specified Fibre Channel target is online or offline.

**`qsrDscTgtStatusChanged`** uses the following objects:

- `qsrBladeSlot`
- `qsrEventTimeStamp`
- `qsrFcTgtState`
- `qsrEventSeverity`

FC target device discovery notifications are sent for the following event:

- FC Target
  - State: Discovered, went offline, or went online
  - Target WWPN
  - Blade number (1 or 2)

## Target Presentation (Mapping)

The target presentation notification indicates that the specified target has been presented (mapped) or unpresented (unmapped).

**`qsrPresTgtMapped`** uses the following objects:

- `qsrBladeSlot`
- `qsrEventTimeStamp`
- `qsrPresTgtMapped`
- `qsrPresTgtUnmapped`
- `qsrEventSeverity`

Target presentation notifications are sent for the following event:

- Target Presentation

- State: Presented (mapped) or unpresented (unmapped)
- Target name
- Blade number (1 or 2)

## VP Group Notification

The VP group notification indicates that the specified VP group is enabled or disabled. It also represents change in the name of the VP group.

**`qsrVPGroupStatusChanged`** uses the following objects:

- `qsrBladeSlot`
- `qsrVPGroupIndex`
- `qsrVPGroupStatus`
- `qsrEventTimeStamp`
- `qsrEventSeverity`

VP group notifications are sent for the following events:

- Change in name of a VP group
- Enabling and disabling a VP group

## Sensor Notification

The sensor notification indicates that the state for the specified sensor is not `normal`. When the sensor returns to the normal state, this event is sent with the `qsrEventSeverity` object set to `clear`.

**`qsrSensorNotification`** uses the following objects:

- `qsrSensorValue`
- `qsrSensorState`
- `qsrEventTimeStamp`
- `qsrEventSeverity`

Sensor notifications are sent for the following events:

- Over Temperature
  - Blade number (1 or 2)
  - Sensor number (1 of 3)
- Temperature returned to normal
  - Blade number (1 or 2)
  - Sensor number (1 of 3)
- Fans at high speed
  - PCM number (1 or 2)
- Fans returned to normal speed
  - PCM number (1 or 2)

- Power Cooling Module (PCM) installed
  - PCM number (1 or 2)
- PCM removed
  - PCM number (1 or 2)
- PCM powered (AC power connected)
  - PCM number (1 or 2)
- PCM un-powered (AC power removed)
  - PCM number (1 or 2)
- Fan failed
  - PCM number (1 or 2)
  - Fan number (1 of 3)
- Fan returned to operational state
  - PCM number (1 or 2)
  - Fan number (1 of 3)

## Generic Notification

The generic notification reports events other than the defined event types. It provides a description object that identifies the event in clear text.

**`qsrGenericEvent`** uses the following objects:

- `qsrEventTimeStamp`
- `qsrEventSeverity`
- `qsrEventDescription`

Generic notifications are sent for the following events:

- FC port configuration change
  - Blade number (1 or 2)
  - Port number (1 of 4)
- iSCSI port configuration change
  - Blade number (1 or 2)
  - Port number (1 of 4)
- iSNS configuration change
  - Blade number (1 or 2)
- NTP configuration change
  - Blade number (1 or 2)

- Router configuration change
  - Blade number (1 or 2)
- Management port configuration change
  - Blade number (1 or 2)
- Firmware upgrade complete
  - Blade number (1 or 2)
- Reboot blade
  - Blade number (1 or 2)

## Notes

# B Log Messages

This appendix provides details about messages logged to a file. (For details, see “Show Logs” on page 2-63.) The message log is persistent because it is maintained across router power cycles and reboots.

Information in Table B-1 is organized as follows:

- The **ID** column specifies the message identification numbers in ascending order.
- The **Log Message** column indicates the message text displayed in the iSR6200 CLI. Note that:
  - Log messages for the iSCSI driver module are common to both iSCSI ports. Log messages beginning with `#0` denote iSCSI port 1 (GE1) and log messages beginning with `#1` denote iSCSI port 2 (GE2).
  - Log messages for the FC driver module are common to both FC ports. Log messages beginning with `#0` denote FC port 1 (FC1) and log messages beginning with `#1` denote FC port 2 (FC2).
- The **Module Type** column specifies the message reporting module, where:
  - **App** = Application module
  - **FC** = FC driver
  - **iSCSI** = iSCSI driver
  - **System** = System module
  - **TOE** = TCP/IP offload engine module
  - **User** = User module
- The **Msg. Type** column specifies the log message type, where:
  - **Error** = Error log message
  - **Fatal** = Fatal log message
  - **Info** = Informational log message

- The **Description** column provides additional information about the log message.

***Table B-1. All iSR6200 Log Messages***

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 40967 | `QLBA_NullDoorbell: driver unloaded, port disabled` | App | Error | NULL doorbell routine for unloaded drivers. When a driver is unloaded, the doorbell routine is redirected to this NULL routine. |
| 40996 | `QLBA_ProcessTrb: Processing unsupported ordered tag command` | App | Error | Processing unsupported ordered tag task management command. |
| 41004 | `QLBA_ProcessTrb: Processing unsupported head of queue tag command` | App | Error | Processing unsupported head-of-queue task management command. |
| 41058 | `QLBA_CreateTargetDeviceObject: Too many devices` | App | Error | Unable to create an object for the target device; exceeded the maximum number of target devices. |
| 41060 | `QLBA_CreateTargetNodeObject: Too many devices` | App | Error | Unable to create an object for the target node; exceeded the maximum number of target devices. |
| 41067 | `QLBA_CreateLunObject: LunObject memory unavailable` | App | Error | Memory unavailable for LUN object. |
| 41077 | `QLBA_CreateInitiatorObject: Too many initiators` | App | Error | Unable to create an object for initiator object; exceeded the maximum number of initiators. |
| 41096 | `QLBA_DisplayTargetOperationStatus: PCI Error, Status 0x%.2x` | App | Error | Process control block status indicates that a peripheral component interface/interconnect (PCI) error occurred during a target operation. |
| 41106 | `QLBA_DisplayInitiatorOperationStatus: DMA Error, Status 0x%.2x` | App | Error | Process control block status indicates that a direct memory access (DMA) error occurred during an initiator operation. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 41107 | `QLBA_DisplayInitiatorOperationStatus: Transport Error, Status 0x%.2x` | App | Error | Process control block status indicates that a transport error (protocol) occurred during an initiator operation. |
| 41111 | `QLBA_DisplayInitiatorOperationStatus: Data Overrun, Status 0x%.2x` | App | Error | Process control block status indicates that a data overrun error occurred during an initiator operation. |
| 41234 | `QLIS_LoginPduContinue: Operation failed. Initiator 0x%x, TPB status 0x%x` | App | Error | iSCSI login failed between receipt of protocol data unit (PDU) and request for the data segment. |
| 41238 | `QLKV_ValidateLoginTransitCsgNsgVersion failed (status 0x%x)` | App | Error | iSCSI login failed due to unsupported version number in received login PDU. |
| 41257 | `QLIS_LoginPduContinue: Invalid initiator name. Initiator:` | App | Error | iSCSI login PDU contains invalid initiator name. The format and character set used to form the initiator name is invalid. |
| 41265 | `QLIS_LoginPduContinue: Target not configured for Portal` | App | Error | iSCSI target login was attempted to a portal (iSCSI1 or iSCSI2) on which the target is not presented. |
| 41267 | `QLIS_LoginPduContinue: Target not found. Target name:` | App | Error | iSCSI login PDU received for a target with a target name unknown to the router. |
| 41268 | `QLIS_LoginPduContinue: Missing target name` | App | Error | iSCSI login PDU received without a target name for a normal session. |
| 41270 | `QLIS_LoginPduContinue: TSIH is 0 but InitiatorName key/value not provided` | App | Error | iSCSI login PDU received without an initiator name key/value. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 41272 | QLIS_LoginPduContinue: CONN_STATE_IN_LOGIN, Unknown InitTaskTag | App | Error | iSCSI login PDU received with an incorrect initiator task tag for a session which is partially logged in. This would occur if a login PDU other than the initial login PDU used an initiator task tag which was different than the initiator task tag provided in the initial login PDU. |
| 41283 | QLIS_LoginPduContinue: TSIH 0x%x out of range | App | Error | iSCSI login PDU was received with a target session identifying handle (TSIH) out of range. This would occur if the iSCSI initiator attempting the login failed to used the TSIH value provided in the Target Login Response PDU (router is target) in subsequent login PDUs. |
| 41284 | QLIS_LoginPduContinue: Session does not exist, invalid TSIH 0x%x | App | Error | iSCSI login PDU was received with an invalid TSIH value. The TSIH is invalid because there is no session with that TSIH value. This would occur if the iSCSI initiator attempting the login failed to used the TSIH value provided in the target login response PDU (router is target) in subsequent login PDUs. |
| 41353 | QLIS_LoginPduContinue: Session does not exist, invalid TSIH 0x%x | App | Error | iSCSI login rejected due to a CHAP authentication error. |
| 41354 | QLIS_LoginPduContinue: Unexpected CHAP key detected | App | Error | iSCSI login rejected due to a CHAP key error. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 41508 | `QLBI_SetPortInfo: QLUT_AllocatePortalObject failed (PortType 0x%x, PortId 0x%x)` | App | Error | Failed to allocate an object for *Set Port Info* IOCTL processing:<br>PortType: 0 = FC, 1 = iSCSI<br>PortId: 0 = FC1 or iSCSI1(GE1), 1 = FC2 or iSCSI2 (GE2) |
| 41626 | `QLBI_GetLunInfo: INQUIRY failed, TPB status 0x%x` | App | Error | Inquiry command failed. The Inquiry command was issued by the router as part of its discovery process. |
| 41629 | `QLBI_GetLunInfo: INQUIRY failed, TPB status 0x%x` | App | Error | Pass-Through command for Inquiry command for page 83 failed. The Inquiry command was issued by the router as part of its discovery process. |
| 41635 | `QLBI_Passthru: Invalid data length %d bytes` | App | Error | Pass-Through command for Read Capacity command failed. The Read Capacity command was issued by the router as part of its discovery process. |
| 41636 | `QLBI_GetLunInfo: INQUIRY failed, TPB status 0x%x` | App | Error | Read Capacity command failed. The Read Capacity command was issued by the router as part of its discovery process. |
| 41696 | `QLBI_GetLunInfo: INQUIRY failed, TPB status 0x%x` | App | Error | Pass-Through command issued by management application (such as GUI) was aborted. |
| 41700 | `QLBI_Passthru: Invalid CDB length %d bytes` | App | Error | Pass-Through command issued by management application (such as GUI) failed due to invalid command descriptor block (CDB) length. |
| 41701 | `QLBI_Passthru: Invalid data length %d bytes` | App | Error | Pass-Through command issued by management application (such as GUI) failed due to invalid data length. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 41717 | QLBI_Passthru: Invalid data length %d bytes | App | Error | Pass-Through command issued by management application (such as GUI) was interrupted or timed out. |
| 41750 | QLBI_Ioctl: ERROR: Operation (0x%x) not supported in this mode | App | Error | IOCTL operation unsupported. Operation code provided in log message. |
| 41768 | QLBI_GetLunList: REPORT LUNS command failed | App | Error | Report LUNs command failed. The Report LUNs command was issued by the router as part of its discovery process. |
| 41769 | QLBI_GetLunList: REPORT LUNS command failed with CHECK CONDITION, SCSI STATUS 0x%02X | App | Error | Report LUNs command failed with check condition status. The Report LUNs command was issued by the router as part of its discovery process. |
| 41771 | QLBI_GetLunList: Lun allocation failed for LunId %d | App | Error | Failed to allocate LUN object; out of resources. |
| 41994 | QLFC_Login: VpIndex (%d) out of range | App | Error | Login attempted using FC virtual port (VP) index that is out-of-range (range = 0–31). Index reported in log message. |
| 41995 | QLFC_Login: VP Index 0x%x not configured | App | Error | Login attempted using FC VP index that has not been configured. Operation attempted on an unconfigured VP. |
| 42002 | QLFC_Login: Can't open connection | App | Error | Attempting login but FC connection cannot be opened. |
| 42024 | QLFC_Logout: No active path to device. WWPN: %.2X%.2X%.2X%.2X%.2X%.2X%.2X%.2X | App | Error | Attempting logout of device for which there is no active path (WWPN not found). |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 42027 | QLFC_Logout: VP Index 0x%x not configured | App | Error | Logout attempted using FC VP index that has not been configured. Operation attempted on an unconfigured VP. |
| 42068 | QLFC_HandleTeb: System Error | App | Error | Event notification; FC processor encountered a system error (unrecoverable firmware error). |
| 42069 | QLFC_HandleTeb: Driver Fatal Error | App | Error | Event notification; FC driver encountered a fatal error. |
| 42072 | QLFC_HandleTeb: Driver Fatal Error | App | Error | Event notification; FC port logged out. |
| 42242 | QLIS_AllocateSessionObject: Out of session resources | App | Error | Failed to allocate object for iSCSI session; out of session resources. |
| 42252 | QLIS_EnqueueiScsiPdu: Duplicate PDU, CmdSN %d (0x%x), dropping it | App | Error | Received iSCSI PDU with duplicate command sequence number (CmdSN). Command PDU will be dropped. |
| 42258 | QLIS_InstantiateSession: Can't add Initiator to the database | App | Error | Unable to allocate iSCSI initiator object while instantiating session. |
| 42259 | QLIS_InstantiateSession: Maximum number (%d) of allowed hosts already logged in | App | Error | iSCSI session login rejected because the maximum number of allowed hosts are already logged in. |
| 42404 | QLIS_InstantiateSession: Maximum number (%d) of allowed hosts already logged in | App | Error | Failed to execute iSCSI Command PDU because its CmdSN is out-of-range. Log message contains the incorrect CmdSN, the valid CmdSN range, the first byte of the CDB, and the data length. |
| 42648 | QLIS_HandleTeb: Driver Fatal Error | App | Error | Event notification; iSCSI driver encountered a fatal error. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 42649 | `QLIS_HandleTeb: Unload Driver` | App | Error | Event notification; an IOCTL request was received to unload the iSCSI driver. |
| 42654 | `QLIS_HandleTeb: iSNS Connection Failed` | App | Error | Event notification; attempt to connect to the iSNS server failed. |
| 43265 | `QLUT_AllocateTpbExtension: TPB allocation failed` | App | Error | Failed to allocate memory for TPB extension. |
| 43267 | `QLUT_AllocateTpbExtension: Alloc of DSD failed for buffer len %d` | App | Error | Failed to allocate data segment descriptor (DSD) (buffer length `%d`). |
| 43268 | `QLUT_AllocateTpbExtension: Data buffer allocation failed (length %d)` | App | Error | Failed to allocate data buffer (length `%d`). |
| 53254 | `System Booting Up.` | App | Info | Router is booting up. |
| 53357 | `QLBA_ProcessTpb: De-compression failed. Disabling compression temporarily` | App | Info | Decompression failed. Disabling compression temporarily. |
| 53584 | `QLIS_LoginPduContinue: [0x%x] SES_STATE_LOGGED_IN NORMAL` | App | Info | iSCSI session full feature login. |
| 53585 | `QLIS_LoginPduContinue: [0x%x] SES_STATE_LOGGED_IN DISCOVERY` | App | Info | iSCSI session discovery login. |
| 53586 | `QLIS_LoginPduContinue: Initiator: %s` | App | Info | iSCSI login of Initiator: `%s`. |
| 53587 | `QLIS_LoginPduContinue: Target: %s` | App | Info | iSCSI login of Target: `%s`. |
| 54274 | `QLFC_Login: Origin 0x%x, VP Index 0x%x, Id 0x%x` | App | Info | FC login occurred, origin *xx* (1 = adapter, 2 = target, 3 = initiator), VP (virtual port) *xx*, ID (loop ID) *xx*. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 54275 | QLFC_Login: Port ID %.2x%.2x%.2x | App | Info | FC login occurred with port ID *xx.xx.xx*. |
| 54276 | QLFC_Login: Node Name %.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x | App | Info | FC login occurred with WWNN *xx.xx.xx.xx.xx.xx.xx.xx*. |
| 54277 | QLFC_Login: Port Name %.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x | App | Info | FC login occurred with WWPN *xx.xx.xx.xx.xx.xx.xx.xx*. |
| 54306 | QLFC_Logout: Origin 0x%x, VP Index 0x%x, Id 0x%x | App | Info | FC Logout: Origin 0x%x, VP Index 0x%x, ID 0x%x. |
| 54307 | QLFC_Logout: Port ID %.2x%.2x%.2x | App | Info | FC Logout: Port ID %.2x%.2x%.2x. |
| 54308 | QLFC_Logout: Node Name %.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x | App | Info | FC Logout: Node Name *xx xx xx xx xx xx xx xx*. |
| 54309 | QLFC_Logout: Port Name %.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x | App | Info | FC Logout: Port Name *xx xx xx xx xx xx xx xx.* |
| 54359 | QLFC_Logout: Port Name %.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x | App | Info | FC login event notification, VP (virtual port) *xx*. |
| 54683 | QLIS_OpenConnectionNotification: Target connection opened (Port %d, DDB %d) | App | Info | iSCSI target connection opened for port %d, data description block (DDB) %d. |
| 54938 | QLIS_OpenConnectionNotification: Target connection opened (Port %d, DDB %d) | App | Info | Event notification; iSCSI open connection request. |
| 54939 | QLIS_HandleTeb: UTM_EC_CLOSE_CONNECTION or UTM_EC_CONNECTION_CLOSED | App | Info | Event notification; iSCSI close connection request or connection closed. |
| 54940 | QLIS_HandleTeb: UTM_EC_CLOSE_CONNECTION or UTM_EC_CONNECTION_CLOSED | App | Info | Event notification; iSCSI connection closed. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 54941 | `QLIS_HandleTeb:iSNS Server Open Connection succeeded` | App | Info | Event notification; connection opened with iSNS server. |
| 54943 | `QLIS_HandleTeb: UTM_EC_ISNS_SCN` | App | Info | Event notification; iSNS registered state change notification (RSCN) received. |
| 54945 | `QLIS_HandleTeb: UTM_EC_ISNS_CLIENT_DISCOVERED` | App | Info | Event notification; iSNS client discovered. |
| 69652 | `#%d: qlutm_init: Diagnostic failed, invalid SRAM` | iSCSI | Fatal | iSCSI processor SRAM test failed. |
| 69653 | `#%d: qlutm_init: Diagnostic failed, fail reboot` | iSCSI | Fatal | iSCSI processor failed diagnostic reboot. |
| 69654 | `#%d: qlutm_init: Diagnostic failed, invalid NVRAM` | iSCSI | Fatal | iSCSI processor failed NVRAM diagnostic. |
| 69655 | `#%d: qlutm_init: Diagnostic failed, invalid DRAM` | iSCSI | Fatal | iSCSI processor failed DRAM diagnostic. |
| 69656 | `#%d: qlutm_init: Failed to return diagnostic result to Bridge` | iSCSI | Fatal | iSCSI processor failed to return diagnostic results. |
| 69941 | `#%d: QLUtmProcessResponseQueue: Invalid handle %x EntryType %x` | iSCSI | Fatal | Response queue entry contains an invalid handle. |
| 69951 | `#%d: QLSetNvram: QLRebootTimer failed AF %x RS %x Time %d` | iSCSI | Fatal | Set NVRAM reboot timer failed. |
| 69964 | `#%d: QLDisable: QLRebootTimer failed AF %x RS %x Time %d` | iSCSI | Fatal | Port disable reboot timer failed. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 69966 | `#%d: QLEnable: QLRebootTimer failed AF %x RS %x Time %d` | iSCSI | Fatal | Port enable reboot timer failed. |
| 70224 | `#%d: QLProcSrblessiSNSResponse: Invalid handle %x` | iSCSI | Fatal | iSNS response contains an invalid handle. |
| 70400 | `#%d: QLInitializeDevice: QLStartAdapter failed` | iSCSI | Fatal | Start iSCSI processor failed. |
| 70417 | `#%d: QLInitializeAdapter: QLInitializeFW failed` | iSCSI | Fatal | iSCSI processor firmware initialization failed. |
| 70432 | `#%d: QLDoInterruptServiceRoutine: PortFatal interrupt. PortFatalErrorStatus %08x CSR %08x AS %x AF %x` | iSCSI | Fatal | iSCSI processor port fatal error. |
| 70448 | `#%d: QLStartAdapter: QLRebootTimer failed AF %x RS %x Time %d` | iSCSI | Fatal | Start iSCSI processor reboot timer failed. |
| 70489 | `#%d: QLIsrDecodeMailbox: System Error 8002 MB[1-7] %04x %04x %04x %04x %04x %04x %04x` | iSCSI | Fatal | iSCSI processor fatal system error. |
| 70499 | `#%d: QLProcessResponseQueue: Invalid handle for ET_PASSTHROUGH_STATUS` | iSCSI | Fatal | Response queue invalid handle for ET pass-through. |
| 70501 | `#%d: QLProcessResponseQueue: Invalid entry type in response queue %x` | iSCSI | Fatal | Response queue invalid entry type. |
| 70502 | `#%d: QLProcessResponseQueue: Invalid handle %x EntryType %x` | iSCSI | Fatal | Response queue invalid handle for specified entry type. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 70524 | `#%d: QLProcessAen: Invalid event %x` | iSCSI | Fatal | Asynchronous event for unknown event type. |
| 70544 | `#%d: QLRebootTimer: Reboot failed!` | iSCSI | Fatal | Reboot timer failed. |
| 70563 | `#%d: QLRebootTimer: Reboot failed!` | iSCSI | Fatal | iSCSI driver missed iSCSI processor heartbeat. iSCSI processor rebooted. |
| 70564 | `#%d: QLRebootTimer: Reboot failed!` | iSCSI | Fatal | iSCSI processor failed to complete operation before timeout. |
| 70609 | `#%d: QLRebootTimer: Reboot failed!` | iSCSI | Fatal | iSCSI processor system error restart. |
| 70610 | `#%d: QLProcessSystemError: RebootHba failed` | iSCSI | Fatal | iSCSI processor reboot failed. |
| 70784 | `#%d: QLConfigChip: invalid NVRAM` | iSCSI | Fatal | iSCSI processor NVRAM invalid (checksum error). |
| 70835 | `#%d: QLStartFw: MBOX_CMD_SET_FLASH failed %x` | iSCSI | Fatal | iSCSI controller Set Flash command failed. |
| 70836 | `#%d: QLStartFw: Invalid Fw loader state 0x%x` | iSCSI | Fatal | iSCSI controller failed to load firmware. |
| 70837 | `#%d: QLStartFw: Load Fw loader timeout` | iSCSI | Fatal | iSCSI controller firmware load operation timed out. |
| 70938 | `#%d: ql_adapter_up: Failed to initialize adapter` | iSCSI | Fatal | iSCSI controller failed to initialize. |
| 72351 | `#%d: QLProcSrblessiSNSResponse: Invalid handle %x` | iSCSI | Fatal | iSCSI controller reported that an SNS response had an invalid handle. |
| 73990 | `#%d: QLUtmIoctlEnable: Initialize FW failed` | iSCSI | Error | iSCSI processor failed firmware initialization. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 74056 | `#%d: QLRunDiag: MBOX Diag test internal loopback failed %x %x` | iSCSI | Error | iSCSI processor failed the internal loopback test. |
| 74057 | `#%d: QLRunDiag: MBOX Diag test external loopback failed %x %x` | iSCSI | Error | iSCSI processor failed the external loopback test. |
| 74068 | `#%d: QLUtmReceiveScsiCmd: Invalid ATIO Continuation type %x` | iSCSI | Error | iSCSI processor reported an invalid Accept Target I/O (ATIO) Continuation type *x*. |
| 74069 | `#%d: QLUtmProcessResponseQueue: Immediate data addr %08x:%08x in unsupported PduType` | iSCSI | Error | iSCSI processor reported an Immediate data address (*xxxxxxxx:xxxxxxxx*) in an unsupported PDU Type. |
| 74241 | `#%d: QLiSNSEnableCallback: iSNS Server TCP Connect failed` | iSCSI | Error | iSCSI processor could not connect with the iSCSI name server (iSNS). |
| 74577 | `#%d: QLIsrDecodeMailbox: NVRAM invalid` | iSCSI | Error | iSCSI processor reported that the iSCSI port NVRAM contains invalid data (checksum error). |
| 74580 | `#%d: QLIsrDecodeMailbox: AEN %04x, Duplicate IP address detected, MB[1-5] %04x %04x %04x %04x %04x` | iSCSI | Error | iSCSI processor reported a duplicate IP address was detected (address *xxxx xxxx xxxx xxxx xxxx*). |
| 74587 | `#%d: QLIsrDecodeMailbox: Link down` | iSCSI | Error | iSCSI processor reported a link down condition. |
| 74656 | `#%d: QLReadyTimer: Adapter missed heartbeat for %d seconds. Time left %d` | iSCSI | Error | Driver failed to receive a heartbeat from the iSCSI processor for the specified number of seconds. |
| 74659 | `#%d: QLReadyTimer: Adapter missed heartbeat for 0x%x seconds` | iSCSI | Error | iSCSI processor (adapter) failed to provide a heartbeat for *x* seconds. |
| 74660 | `#%d: QLReadyTimer: Abort pTpb=%p failed, DrvCount 0x%x` | iSCSI | Error | iSCSI processor failed to complete an abort request. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 74661 | `#%d: QLTimer: Abort pTpb=%p, Type %x, Timeout 0x%x DrvCount 0x%x, DdbIndex 0x%x` | iSCSI | Error | Driver timed out an iSCSI processor operation and is aborting the operation. |
| 74663 | `#%d: QLReadyTimer: MBOX_CMD %04x %04x %04x %04x %04x %04x %04x %04x timed out` | iSCSI | Error | Driver timed out an iSCSI processor mailbox command. |
| 74665 | `#%d: QLReadyTimer: QLiSNSReenable failed.` | iSCSI | Error | Driver timed out while attempting to reconnect with the iSNS. |
| 74705 | `#%d: QLProcessSystemError: Restart RISC` | iSCSI | Error | iSCSI processor was restarted. |
| 74746 | `#%d: QLInitializeFW: MBOX_CMD_INITIALIZE_FIRMWARE failed %04x %04x %04x %04x %04x %04x` | iSCSI | Error | iSCSI processor rejected the firmware initialize command. |
| 74784 | `#%d: QLUpdateInitiatorData: No more room in Initiator Database.` | iSCSI | Error | Driver's initiator database is full. The driver is capable of storing 1024 iSCSI initiators in its database. Use the CLI or GUI to remove unwanted/unused iSCSI initiators. |
| 74800 | `#%d: QLSetTargetData: No more room in Target Database.` | iSCSI | Error | Driver's target database is full. Use the CLI or GUI to remove unwanted/unused iSCSI targets. |
| 75008 | `#%d: ql_process_error: OB_TCP_IOCB_RSP_W returned DdbInx 0x%x pTpb %p` | iSCSI | Error | TCP retry for a frame failed on the connection `ddbIndex`. `Tpb` contains the frame memory address. |
| 86347 | `#%d: QLDisable: Restart RISC` | iSCSI | Info | Restart iSCSI processor (RISC). |
| 86349 | `#%d: QLEnable: Restart RISC to update EEPROM` | iSCSI | Info | EEPROM updated, restart iSCSI processor (RISC). |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 86874 | `#%d: QLIsrDecodeMailbox: Link up` | iSCSI | Info | Link up reported by iSCSI processor for GE1 or GE 2. |
| 87346 | `#%d: QLGetFwStateCallback: link 100Mb FDX` | iSCSI | Info | iSCSI controller reported a link speed/configuration of 100Mb full-duplex (FDX). |
| 87348 | `#%d: QLGetFwStateCallback: link 1000Mb FDX` | iSCSI | Info | iSCSI controller reported a link speed/configuration of 1000Mb FDX. |
| 87350 | `#%d: QLGetFwStateCallback: Invalid link speed 0x%x` | iSCSI | Info | iSCSI controller reported an invalid link speed. |
| 102419 | `#%d: qlutm_init: Diagnostic failed, port 1 invalid SRAM` | FC | Fatal | FC1 processor SRAM test failed. |
| 102420 | `#%d: qlutm_init: Diagnostic failed, port 1 POST failed` | FC | Fatal | FC1 processor power-on self-test (POST) failed. |
| 102421 | `#%d: qlutm_init: Diagnostic failed, port 2 invalid SRAM` | FC | Fatal | FC2 processor SRAM test failed. |
| 102422 | `#%d: qlutm_init: Diagnostic failed, port 2 POST failed` | FC | Fatal | FC2 processor POST failed. |
| 102423 | `#%d: qlutm_init: Failed to return diagnostic result to Bridge` | FC | Fatal | FC processor failed to return diagnostic results. |
| 102656 | `#%d: QLInitializeAdapter: Reset ISP failed` | FC | Fatal | FC processor failed reset. |
| 102657 | `#%d: QLInitializeAdapter: Load RISC code failed` | FC | Fatal | FC processor firmware load failed. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 102658 | `#%d: QLInitializeAdapter: Load ISP2322 receive sequencer code failed` | FC | Fatal | FC processor receive sequencer code load failed. |
| 102659 | `#%d: QLInitializeAdapter: Load ISP2322 transmit sequencer code failed` | FC | Fatal | FC processor transmit sequencer code load failed. |
| 102662 | `#%d: QLInitializeAdapter: Verify Checksum command failed (%x)` | FC | Fatal | FC processor firmware checksum failed. |
| 102680 | `#%d: QLInitializeFW: FAILED` | FC | Fatal | FC processor firmware initialization failed. |
| 102688 | `#%d: QLInterruptServiceRoutine: Risc pause %x with parity error hccr %x, Disable adapter` | FC | Fatal | FC processor paused due to internal parity error. |
| 102689 | `#%d: QLInterruptServiceRoutine: Invalid interrupt status: %x` | FC | Fatal | FC processor returned an invalid interrupt status. |
| 102716 | `#%d: QLIsrEventHandler: System error event (%x), MB1=%x, MB2=%x, MB3=%x, MB4=%x, MB5=%x, MB6=%x, MB7=%x` | FC | Fatal | FC processor system error. |
| 102746 | `#%d: QLProcessResponseQueue: Invalid handle %x, type %x` | FC | Fatal | Response queue entry contains an invalid handle. |
| 102752 | `#%d: QLTimer: Ext Ram parity error exceed limit cnt 0x%x, limit 0x%x, Disabled adapter` | FC | Fatal | FC processor external SRAM parity error count exceeded limit; FC port disabled. |
| 102755 | `#%d: QLTimer: Heartbeat failed` | FC | Fatal | FC processor heartbeat failed. |
| 102800 | `#%d: QLRestartRisc: restart RISC` | FC | Fatal | FC processor being restarted. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 106583 | `#%d: QLUtmReceiveIo: Path invalid/FW No resource count %x` | FC | Error | FC processor received a SCSI command for an unknown target path or has run out of resources to execute additional commands. |
| 106589 | `#%d: QLIoctlEnable: Adapter disabled` | FC | Error | FC processor was disabled by an IOCTL request to the driver. |
| 106590 | `#%d: QLIoctlEnable: Initialize FW error` | FC | Error | FC processor firmware failed initialization. The request to initialize was received by the driver in an IOCTL request. |
| 106592 | `#%d: QLIoctlRunDiag: Diagnostic loopback command failed %x % %x %x` | FC | Error | FC processor failed the external loopback test. |
| 106593 | `#%d: QLIoctlDisable: Re-initialize adapter failed` | FC | Error | FC processor failed to re-initialize in response to an IOCTL disable request. |
| 106803 | `#%d: QLIsrEventHandler: Link down (%x)` | FC | Error | FC processor reported a link down condition. |
| 106813 | `#%d: QLIsrEventHandler: Unexpected async event (%x), MB1=%x, MB2=%x, MB3=%x, MB4=%x, MB5=%x, MB6=%x, MB7=%x` | FC | Error | FC processor reported an unexpected asynchronous event. The mailbox registers provide status, event code, and data related to the event. |
| 106847 | `#%d: QLProcessResponseQueue: Invalid EntryStatus %x, type %x` | FC | Error | FC controller reported an invalid Entry Status `%x`, type `%x`. |
| 106851 | `#%d: QLTimer: Heartbeat failed` | FC | Error | FC controller failed to provide a heartbeat. |
| 106853 | `#%d: QLTimer: Link error count (0x%x) exceeded, link down` | FC | Error | Driver has determined that the FC link is unreliable and unusable due to the number of errors encountered. The link has been taken down. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 106912 | `#%d: QLReserveLoopId: out of loop Ids` | FC | Error | FC processor was unable to obtain the number of loop IDs required. This failure occurs only when the FC processor is running multi-ID firmware. |
| 106928 | `#%d: QLMarkDeviceOffline: Device Id: %x marked offline, cLinkDownTimeout = %x, cPortDownRetryCount=%x` | FC | Error | Driver was unable to re-establish connection to the target within the timeout and retry counts, and is therefore marking it *offline*. |
| 106948 | `#%d: QLSnsGetAllNext: Name server login FAILED %x` | FC | Error | FC processor is unable to log into the FC fabric name server. |
| 107029 | `#%d: QLUpdateDeviceData: out of slots in host database` | FC | Error | Driver's host (initiator) database is full. |
| 107030 | `#%d: QLUpdateDeviceData: out of slots in target database` | FC | Error | Driver's target database is full. |
| 107041 | `#%d: QLUpdateDeviceDatabase 0x%x: GET_ID failed %x` | FC | Error | Driver's host (initiator) database is full. Maximum host database is 64. |
| 107056 | `#%d: QLUpdateDeviceDatabase 0x%x: out of slots in host database` | FC | Error | Drivers host (initiator) database is full. |
| 107078 | `#%d: QLUpdatePort 0x%x: out of slots in host database` | FC | Error | Driver was unable to re-establish connection to the target within the timeout and retry counts, and is therefore marking it *offline*. |
| 107984 | `#%d: QLWriteFlashDword: Write fails at addr 0x%x data 0x%x` | FC | Error | FC controller failed a Flash write (address *x* data *x*). |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 108032 | `#%d: QLGetVpDatabase: MBOX_CMD_GET_VP_DATABASE for VP %d fatal error` | FC | Error | FC controller failed the Get VP Database command (for virtual port `%d`). |
| 108033 | `#%d: QLGetVpDatabase: MBOX_CMD_GET_VP_DATABASE for VP %d failed %x` | FC | Error | FC controller failed the Get VP Database command (for virtual port `%d`) with status *x*. |
| 108049 | `#%d: QLVerifyMenloFw: EXECUTE_COMMAND_IOCB failed MB0 %x MB1 %x` | FC | Error | FC controller reported failure status for an Execute IOCB (input/output control block) command. |
| 108050 | `#%d: QLVerifyMenloFw: EXECUTE_COMMAND_IOCB fatal error` | FC | Error | FC controller reported a fatal error while processing an Execute IOCB command. |
| 108064 | `#%d: QLGetFwState: Get Firmware State failed 0-3 %x %x %x %x` | FC | Error | FC controller reported failure status for a Get Firmware State command. |
| 118882 | `#%d: QLIoctlDisable: Reset adapter` | FC | Info | Request to reset the FC processor (adapter) received from ioctl interface. |
| 119088 | `#%d: QLIsrEventHandler: LIP occurred (%x): mailbox1 = %x` | FC | Info | FC loop initialization process (LIP) occurred. The LIP type is reported, as is the contents of the FC processor's mailbox 1 register. |
| 119089 | `#%d: QLIsrEventHandler: LIP reset occurred (%x): mailbox1 = %x` | FC | Info | FC LIP reset occurred. The LIP reset type is reported, as is the contents of the FC processor's mailbox 1 register. |
| 119090 | `#%d: QLIsrEventHandler: Link up (%x) mailbox1 = %x` | FC | Info | FC link up occurred. Event status is reported, as is the contents of the FC processor's mailbox 1 register. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 119092 | `#%d: QLIsrEventHandler: Link mode up (%x): RunTimeMode=%x` | FC | Info | FC link up occurred. Event status is reported, as is the RunTimeMode (0 = loop, 1 = point-to-point). |
| 119093 | `#%d: QLIsrEventHandler: RSCN update (%x) rscnInfo: %x` | FC | Info | An RSCN was received. Event status is reported, as is the RSCN information. |
| 119097 | `#%d: QLIsrEventHandler: Port update (%x) mb1-3 %x %x %x` | FC | Info | FC port update. Event status is reported, as is the contents of the FC processor's mailbox 1, 2, and 3 registers. |
| 139265 | `QBRPC_Initialize: Entered` | User | Error | RPC (remote procedure call) server initialization entry point. |
| 139266 | `QBRPC_Initialize:GetBridge Mem Allocation error` | User | Error | Get System API memory allocation failed. |
| 139267 | `QBRPC_Initialize:GetBridgeAdv Mem Allocation error` | User | Error | Get System Advanced API memory allocation failed. |
| 139268 | `QBRPC_Initialize:GetMgmt Mem Allocation error` | User | Error | Get Management API memory allocation failed. |
| 139269 | `QBRPC_Initialize:GetIscsi Mem Allocation error` | User | Error | Get iSCSI API memory allocation failed. |
| 139270 | `QBRPC_Initialize:GetIscsiAdv Mem Allocation error` | User | Error | Get iSCSI advanced API memory allocation failed. |
| 139271 | `QBRPC_Initialize:GetIsns Mem Allocation error` | User | Error | Get iSNS API memory allocation failed. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 139272 | QBRPC_Initialize:GetFcIntfc Mem Allocation error | User | Error | Get FC Interface API memory allocation failed. |
| 139273 | QBRPC_Initialize:GetFcAdv Mem Allocation error | User | Error | Get FC Advanced API memory allocation failed. |
| 139280 | QBRPC_Initialize:GetFcSfp Mem Allocation error | User | Error | Failed memory allocation for Get FC SFP API. |
| 139281 | QBRPC_Initialize:GetLog Mem Allocation error | User | Error | Failed memory allocation for Get Log API. |
| 139282 | QBRPC_Initialize:GetStats Mem Allocation error | User | Error | Failed memory allocation for Get Statistics API. |
| 139283 | QBRPC_Initialize:InitListMem Allocation error | User | Error | Failed memory allocation for Get Initiator List API. |
| 139284 | QBRPC_Initialize:TargetList Mem Allocation error | User | Error | Failed memory allocation for Get Target List API. |
| 139285 | QBRPC_Initialize:LunList MemAllocation error | User | Error | Failed memory allocation for Get LUN List API. |
| 139286 | QBRPC_Initialize:PresTarget Mem Allocation error | User | Error | Failed memory allocation for Get Presented Targets List API. |
| 139287 | QBRPC_Initialize:LunMask Mem Allocation error | User | Error | Failed memory allocation for Get LUN Mask API. |
| 139288 | QBRPC_Initialize:Init Mem Allocation error | User | Error | Failed memory allocation for Initiator API. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 139289 | QBRPC_Initialize:TgtDevice Mem Allocation error | User | Error | Failed memory allocation for Target Device API. |
| 139296 | QBRPC_Initialize:FcTgt Mem Allocation error | User | Error | Failed memory allocation for FC Target API. |
| 139297 | QBRPC_Initialize:BridgeStatus Mem Allocation error | User | Error | Failed memory allocation for System Status API. |
| 139298 | QBRPC_Initialize:Diag Mem Allocation error | User | Error | Failed memory allocation for Diagnostic API. |
| 139299 | QBRPC_Initialize:DiagLog Mem Allocation error | User | Error | Failed memory allocation for Diagnostic Log API. |
| 139300 | QBRPC_Initialize:FruImage Mem Allocation error | User | Error | Failed memory allocation for FRU Image API. |
| 139301 | QBRPC_Initialize:OemMfg Mem Allocation error | User | Error | Failed memory allocation for OEM Manufacturing API. |
| 139302 | QBRPC_Initialize:Status Mem Allocation error | User | Error | Failed memory allocation for Status API. |
| 139303 | QBRPC_Initialize:TcpIpStats Mem Allocation error | User | Error | Failed memory allocation for TCP/IP Statistics API. |
| 139304 | QBRPC_Initialize:NtpStats Mem Allocation error | User | Error | Failed memory allocation for NTP Status API. |
| 139305 | QBRPC_Initialize:LunList MemAlloc error | User | Error | Failed memory allocation for LUN List API. |
| 139315 | QBRPC_FreeResources:Entered | User | Error | RPC free resources entry point. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 139553 | `checkDuplicateIp: Detected Error %08x %08x%04x` | User | Error | Detected duplicate IP address for management port. |
| 151842 | `FW Upgrade performed: new version is: %d.%d.%d.%d` | User | Info | A firmware upgrade was performed, the new version is: *d.d.d.d*. |
| 151843 | `REBOOT/SHUTDOWN Command from user. Code=%d` | User | Info | User issued a REBOOT or SHUTDOWN command. |
| 151889 | `#%d: qapisetfcinterfaceparams_1_svc: FC port configuration changed` | User | Info | FC port configuration has changed. |
| 151890 | `#%d: qapisetiscsiinterfaceparams_1_svc: iSCSI port configuration changed` | User | Info | iSCSI port configuration has changed. |
| 151891 | `#%d: qapisetisns_1_svc:iSNS configuration changed` | User | Info | iSNS configuration has changed. |
| 151892 | `qapisetntpparams_1_svc: NTP configuration changed` | User | Info | NTP configuration has changed. |
| 151893 | `#%d: qapisetvlanparams_1_svc: VLAN configuration changed` | User | Info | VLAN configuration has changed. |
| 151894 | `qapisetlunmask_1_svc: Lunmask added for LUN %d` | User | Info | LUN mask was added for LUN `%d`. |
| 151895 | `qapisetlunmask_1_svc: Lunmask removed for LUN %d` | User | Info | LUN mask was removed for LUN `%d`. |
| 151896 | `qapisetmgmintfcparams_1_svc:Management port configuration changed` | User | Info | Management port configuration has changed. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 151897 | `qapisetbridgebasicinfo_1_svc:Bridge configuration changed` | User | Info | Router configuration has changed. |
| 151908 | `GE%d: Port status changed by user to ENABLED.` | User | Info | GE port `%d` was enabled user. |
| 151909 | `GE%d: Port status changed by user to DISABLED.` | User | Info | GE port `%d` was disabled by user. |
| 151910 | `FC%d: Port status changed by user to ENABLED.` | User | Info | FC port `%d` was enabled by user. |
| 151911 | `FC%d: Port status changed by user to DISABLED.` | User | Info | FC port `%d` was disabled by user. |
| 151912 | `qapimaptargetdevice_1_svc: Target WWPN: %.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x mapped to iSCSI portal %d.` | User | Info | Target at WWPN: *xx.xx.xx.xx.xx.xx.xx.xx* has been mapped to iSCSI portal `%d`. |
| 151913 | `qapimaptargetdevice_1_svc: Target WWPN: %.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x%.2x unmapped from iSCSI portal %d.` | User | Info | Target at WWPN: *xx.xx.xx.xx.xx.xx.xx.xx* has been unmapped from iSCSI portal `%d`. |
| 152082 | `qapiaddmodifyinitiator_1_svc : Initiator Configuration Changed` | User | Info | Initiators configuration has changed. |
| 152083 | `qapiremoveinitiator_1_svc : Initiator Removed` | User | Info | Initiator has been removed. |
| 152129 | `sysTempMon: Left PCM Installed` | User | Info | Left power and cooling module (PCM) is or has been installed. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 152130 | `sysTempMon: Left PCM Un-installed` | User | Info | Left PCM is or has been uninstalled. |
| 152131 | `sysTempMon: Right PCM Installed` | User | Info | Right PCM is or has been installed. |
| 152132 | `sysTempMon: Right PCM Un-installed` | User | Info | Right PCM is or has been uninstalled. |
| 152133 | `sysTempMon: Power for Left PCM Plugged-in` | User | Info | Left PCM is connected AC power. |
| 152134 | `sysTempMon: Power for Left PCM Un-plugged` | User | Info | Left PCM is not connected to AC power (unplugged). |
| 152135 | `sysTempMon: Power for Right PCM Plugged-in` | User | Info | Right PCM is connected AC power. |
| 152136 | `sysTempMon: Power for Right PCM Un-plugged` | User | Info | Right PCM is not connected to AC power (unplugged). |
| 152137 | `sysTempMon: Slot 1 (R1) PCM Fan%d faulty` | User | Info | Left PCM (#1) is reporting a faulty fan. |
| 152138 | `sysTempMon: Slot 2 (R2) PCM Fan%d faulty` | User | Info | Left PCM (#1) is reporting a healthy fan. |
| 152139 | `sysTempMon: Slot 1 (R1) PCM Fan%d healthy` | User | Info | Right PCM (#2) is reporting a faulty fan. |
| 152140 | `sysTempMon: Slot 2 (R2) PCM Fan%d healthy` | User | Info | Right PCM (#2) is reporting a healthy fan. |
| 152141 | `sysTempMon: Over Temperature Front: %dC Rear: %dC CPU1: %dC CPU2: %dC` | User | Info | Router has detected an over temperature, Front: `%dC` Rear: `%dC` CPU1: `%dC` CPU2: `%dC`. |
| 152142 | `sysTempMon: Setting the fan speed to high` | User | Info | Fan(s) speed has been set to high. |
| 152143 | `sysTempMon: Setting the fan speed to normal` | User | Info | Fan(s) speed has been set to normal. |
| 152144 | `sysTempMon: Temperature back to safe value. Front: %dC Rear: %dC CPU1: %dC CPU2: %dC` | User | Info | Router temperature has returned to normal operating range, Front: `%dC` Rear: `%dC` CPU1: `%dC` CPU2: `%dC`. |

*Table B-1. All iSR6200 Log Messages (Continued)*

| ID | Log Message | Module Type | Msg. Type | Description |
|---|---|---|---|---|
| 152145 | `sysTempMon: Critical Temperature, Shutting Down Front: %dC Rear: %dC CPU1: %dC CPU2: %dC` | User | Info | Router has reached a critical temperature ad is shutting down, Front: `%dC` Rear: `%dC` CPU1: `%dC` CPU2: `%dC`. |
| 200721 | `QL3022:ql3xxx_probe: Adapter eth#%d, Invalid NVRAM parameters` | TOE | Fatal | A GE port (`eth#%d`) has invalid NVRAM parameters. |
| 233473 | `"memory monitor: Detected Uncorrectable Ecc %08lx system is rebooting in 5 secs\n"` | System | Fatal | Uncorrectable memory error detected at address provided in log message. |
| 233474 | `"Failed to register interrupt handler!\n"` | System | Fatal | Attempt to register the interrupt handler failed. |
| 233475 | `"%s class_simple_create failed\n"` | System | Fatal | Failed `class_simple_create` system call from memory monitor initialization routine. |
| 237572 | `"Failed to kill sys killer %d\n"` | System | Error | Failed to kill system task. |
| 237573 | `Temperature over high threshold %d` | System | Error | Router temperature has exceeded the high temperature threshold. |
| 249862 | `Temperature is back to normal range %d` | System | Info | Router temperature has returned to the normal operating range. |

# Glossary

**activity LED**

A port LED that indicates when frames are entering or leaving the port.

**adapter**

The board that interfaces between the host system and the target devices. Adapter is synonymous with *host bus adapter (HBA)*, *host adapter*, and a*dapter board*.

**adapter port**

A port on the adapter board.

**adapter port beacon**

An LED on the adapter. Flashing it enables you to locate the adapter.

**alarm**

A message generated by the switch that specifically requests attention. Alarms are generated by several switch processes. Some alarms can be configured.

**arbitrated loop**

A circular (ring) topology (versus point-to-point) where two or more ports can be interconnected, but only two ports can communicate at a time. All communication passes through all ports connected to the loop.

**ASIC**

Application specific integrated circuit. A microchip designed for special applications such as Fibre Channel.

**bandwidth**

A measure of the volume of data that can be transmitted at a given transmission rate. A 1-Gbps/2-Gbps FC port can transmit or receive at nominal rates of 1- or 2-Gbps, depending on the device to which it is connected. This corresponds to actual bandwidth values of 106 MB and 212 MB, respectively.

**BIOS**

Basic input output system (typically in Flash PROM). The program (or utility) that serves as an interface between the hardware and the operating system and allows booting from the adapter at startup.

**boot code**

The first program to run when a system is powered on. This is also true for devices within a system.

**CHAP**

Challenge-handshake authentication protocol is used for remote logon, usually between a client and server or a Web browser and Web server. A challenge/response is a security mechanism for verifying the identity of a person or process without revealing a secret password that is shared by the two entities. Also referred to as a” three-way handshake.”

**CNA**

Converged network adapters. CNAs support both data networking (TCP/IP) and storage networking (FC) traffic on a single I/O adapter using two new technologies: Enhanced Ethernet and Fibre Channel over Ethernet (FCoE).

**command line interface (CLI)**

Program interface driven by entering commands and parameters.

**CRC**

Cyclic redundancy check. A type of check value designed to catch most transmission errors.

**CSV file**

Comma separated values file.

**device**

A target, typically a disk drive. Hardware such as a disk drive, tape drive, printer, or keyboard that is installed in or connected to a system. In FC, a *target* device.

**driver**

The software that interfaces between the file system and a physical data storage device or network media.

**E_Port**

Expansion port. A port in an FC switch that connects to another FC switch or bridge device by an inter-switch link. E_Ports are used to link FC switches to form a multi-switch fabric.

**EEPROM**

Electrically erasable programmable read-only memory. Memory that can be erased (entirely, not selectively) using higher electrical voltages.

**Enhanced Ethernet**

Also called *data center Ethernet* or *converged enhanced Ethernet*. Refers to new enhancements to the existing Ethernet standard that eliminate Ethernet's inherently lossy nature and make 10Gb Ethernet a viable storage networking transport.

**F_Port**

The "fabric" port in an FC fabric switch provides a point-to-point link attachment to a single N_Port. F_Ports are intermediate ports in virtual point-to-point links between end ports, for example N_Port to F_Port to F_Port to N_Port using a single FC fabric switch.

**fabric**

A fabric consists of cross-connected FC devices and switches.

**fabric port**

An F_Port or FL_Port.

**fabric switch**

Also, switched fabric. A fabric switch connects multiple devices from independent FC-arbitrated loops (FC-ALs) and point-to-point topologies into a fabric using FC switches.

**failover path**

Software feature that ensures data availability and system reliability by assigning alternate path and automatic adapter failover for device resources. This feature is available only in Windows 2000/Windows Server 2003/Windows Vista, Novell NetWare, and Red Hat/SuSE Linux. (Windows XP and Windows Server 2008 do *not* support failover.)

**FC**

Fibre Channel is a high-speed serial interface technology that supports other higher layer protocols such as SCSI and IP.

**FC-IP mode**

Data transportation mode in which the iSR6200 transports FC frames over a TCP/IP connection using the FCIP (Fibre Channel over IP) protocol to connect two iSR6200 routers. In FC-IP mode, a port pair (one FC port and an IP port on the same router) on local iSR6200 and another port pair on a remote router form a FCIP route.

**FCIP (Fibre Channel over IP)**

Protocol that enables transmission of Fibre Channel information by tunneling data on a SAN over IP networks. An alternative to iSCSI. Also known as Fibre Channel tunneling.

**FCoE**

Fibre Channel over Ethernet. A new technology defined by the T11 standards body that allows traditional FC storage networking traffic to travel over an Ethernet link by encapsulating FC frames inside Layer 2 Ethernet frames. For more information, visit www.fcoe.com.

**FL_Port**

Fabric loop port. In an FC, the fabric switch is capable of FC arbitrated loop operations and is connected to one or more NL_Ports by an FC Arbitrated Loop. An FL_Port becomes a shared entry point for public NL_Port devices to an FC fabric. FL_Ports are intermediate ports in virtual point-to-point links between end ports that do not reside on the same loop, for example NL_Port to FL_Port to F_Port to N_Port through a single FC fabric switch.

**flash**

Non-volatile memory where the boot code is saved. At times, flash and boot code are used interchangeably.

**flash BIOS**

A QLA2*xxx* adapter's flash programmable read-only memory (PROM) contains the code that allows booting from the adapter at startup.

**frame**

Data unit consisting of a start-of-frame (SOF) delimiter, header, data payload, CRC, and an end-of-frame (EOF) delimiter.

**FRU**

Field replaceable unit. Component that can be replaced in the field upon failure.

**G_Port**

Generic port. A port that can operate as either an E_Port or an F_Port. A G_Port can determine operating mode at switch port initialization, F_Port when an N_Port attachment is determined, E_Port when an E_Port attachment is determined. See E_Port, F_Port, FL_Port, L_Port, N_Port, NL_Port

**HA**

High availability. HA refers to a system or device that operates continuously for a long length of time.

**HBA**

Host bus adapter. See adapter.

**heartbeat LED**

A chassis LED that indicates the router status.

**hot replaceable**

Also known as "hot swappable," this means you can add new devices or remove existing ones when the system is running.

**IANA**

Internet Assigned Numbers Authority (IANA) is responsible for the global coordination of the DNS Root, IP addressing, and other Internet protocol resources.

**initiator**

System component, such as a network interface card, that originates an I/O operation.

**IOCB**

Input/output control block.

**IOCTL**

Input/output control. A system call in Unix/Linux systems that allows an application to control or communicate with a device driver outside usual read/write operations.

**IP**

Internet Protocol. A method by which data is sent from one computer to another over the Internet. IP specifies the format of packets, also called *datagrams*, and the addressing scheme.

**iSCSI**

Internet small computer system interface. Protocol that encapsulates data into IP packets to send over Ethernet connections.

**iSNS**

Internet simple name service (iSNS) is used for discovery and management of IP-based SANs.

**L_Port**

Loop port. Does arbitrated loop functions and protocols. NL_Ports and FL_Ports are examples of loop-capable ports. See E_Port, F_Port, FL_Port, G_Port, N_Port, NL_Port.

**latency**

A measure of how fast a transaction travels through the router.

**LIP**

Loop initialization process. The initialization process in an arbitrated loop that occurs when the loop is powered up or a new device is added. One function of a LIP is to assign addresses. All data transmission on the loop is suspended during a LIP.

**load balancing**

A software feature that improves system performance by balancing device access between multiple ports for maximum resource efficiency.

**loopback**

Diagnostic tool that routes transmit data through a loopback connector back to the same adapter.

**LUN**

Logical unit number, a subdivision of a SCSI target. It is the small integer handle that differentiates an individual disk drive or partition (volume) within a common SCSI target device such as a disk array.

Technically, a LUN can be a single physical disk drive, multiple physical disk drives, or a portion (volume) of a single physical disk drive. However, LUNs are typically not entire disk drives but rather virtual partitions (volumes) of a RAID set.

Using LUNs, the FC host can address multiple peripheral devices that may share a common controller.

**maintenance button**

Multifunction momentary switch on the front panel of the router.

**management workstation**

PC workstation used to manage routers remotely by connecting to the routers using the SANsurfer Router Manager or CLI commands.

**MD5**

(Message-Digest algorithm 5) A widely used, partially insecure cryptographic hash function with a 128-bit hash value. An MD5 hash is typically expressed as a 32 digit hexadecimal number.

**media**

Physical-layer information carriers. FC supports several different physical media: copper, multimode optical, and single-mode optical. All FC protocols are supported on all media.

**MIB**

Management information base. A set of guidelines and definitions for SNMP functions.

**mid-plane**

Located inside the iSR6200 chassis between the blades and their corresponding PCMs, the mid-plane connects the removable power supply and the iSR6200 blades.

**N_Port**

Node port. Connects by a point-to-point link to either a single N_Port or a single F_Port. N_Ports handle creation, detection, and flow of message units to and from the connected systems. N_Ports are end ports in virtual point-to-point links through a fabric, for example N_Port to F_Port to F_Port to N_Port using a single FC fabric switch. See also FL_Port.

**NIC**

Network interface card. Computer card installed to enable a dedicated network connection.

**NL_Port**

Node loop port. A port capable of arbitrated loop functions and protocols. An NL_Port connects through an arbitrated loop to other NL_Port and at most a single FL_Port. NL_Ports handle creation, detection, and flow of message units to and from the connected systems. NL_Ports are end ports in virtual point-to-point links through a fabric, for example NL_Port to F_Port to F_Port to N_Port using a single FC fabric switch. In the absence of a fabric switch FL_Port, NL_Ports can communicate with other NL_Ports in virtual point-to-point links through an FC_AL open loop circuit often through FC_AL (Arbitrated Loop) hub or loop switch devices. See: E_Port, F_Port, FL_Port, G_Port, N_Port.

**NTP**

Network time protocol is used for distributing the Coordinated Universal Time (UTC) by means of synchronizing the clocks of computer systems over packet-switched, variable-latency data networks.

**NVRAM**

Non-volatile random access memory. A type of memory that retains data even when power is removed. Holds configuration settings. You can configure NVRAM settings manually or restore them from a file.

**path**

A path to a device is a combination of a adapter port instance and a target port as distinct from internal paths in the fabric network. A fabric network appears to the operating system as an opaque network between the adapter (initiator) and the target.

Because a path is a combination of an adapter and a target port, it is distinct from another path if it is accessed through a different adapter and/or it is accessing a different target port. Consequently, when switching from one path to another, the driver might be selecting a different adapter (initiator), a different target port, or both.

This is important to the driver when selecting the proper method of failover notification. It can make a difference to the target device, which might have to take different actions when receiving retries of the request from another initiator or on a different port.

**PCM**

Power and cooling module. A device that consists of one power supply and three fans.

**point-to-point**

Also FC-P2P. Two FC nodes directly connected (not in a loop).

**port**

Access points in a device where a link attaches. There are four types of ports, as follows:

- N_Port—an FC port that supports point-to-point topology.
- NL_Port—an FC port that supports loop topology.
- FL_Port—a port in a fabric where an N_Port can attach.
- FL_Port—a port in a fabric where an NL_Port can attach.

**port instance**

The number of the port in the system. Each adapter may have one or multiple ports, identified with regard to the adapter as port 0, port 1 and so forth. to avoid confusion when dealing with a system containing numerous ports, each port is assigned a port instance number when the system boots up. So Port 0 on an adapter might have a port instance number of 8, for example, if it is the eighth port discovered by the system.

**POST**

Power-on self test. Diagnostics that the router performs at start-up.

**RISC**

Reduced instruction set computer. A computer microprocessor that performs fewer types of computer instructions, thereby operating at higher speeds.

**RSCN**

Registered state change notification (RSCN) is an FC fabric notification sent to all specified nodes when any major fabric changes occur. This notification allows nodes to immediately gain knowledge about the fabric and react accordingly.

**router log**

Log of messages describing events that occur on the intelligent storage router.

**SAN**

Storage area network. Multiple storage units (disk drives) and servers connected by networking topology.

**SANsurfer Router Manager**

Workstation-based router management application that provides a graphical user interface (GUI) used to configure and monitor intelligent storage routers.

**SCSI**

Small computer system interface. A high-speed interface used to connect devices, such as hard drives, CD drives, printers, and scanners, to a computer. The SCSI can connect many devices using a single controller. Each device is accessed by an individual identification number on the SCSI controller bus.

**SFP**

Small form-factor pluggable. A transceiver device, smaller than a GigaBit Interface Converter, that plugs into the Fibre Channel port.

**SNMP**

Simple network management protocol. SNMP is a networking protocol that enables you to monitor the router using third-party applications that use SNMP.

**SSH**

Secure SHell. Communications tool that provides secure and encrypted connections to traditionally non-encrypted services.

**storage area network**

See SAN.

**target**

The storage-device endpoint of a SCSI session. Initiators request data from targets. Targets are typically disk-drives, tape-drives, or other media devices. Typically a SCSI peripheral device is the target but an adapter may, in some cases, be a target. A target can contain many LUNs.

A target is a device that responds to a requested by an initiator (the host system). Peripherals are targets, but for some commands (for example, a SCSI COPY command), the peripheral may act as an initiator.

**TOE**

TCP/IP offload engine. Technology used in iSCSI to optimize throughput by accelerating the performance of TCP/IP.

**VLAN**

Virtual logical area network (LAN). A group of hosts with a common set of requirements that communicate as if they were attached to the same wire, regardless of their physical location. Although a VLAN has the same attributes as a physical LAN, it allows for end stations to be grouped together even if they are not located on the same LAN segment. VLANs enable network reconfiguration through software, instead of physically relocating devices.

**VPG**

Virtual port group (or VPGROUP). Software component configured in the iSCSI router that is used to create virtual adapters on all FC ports on a blade.

**world wide node name (WWNN)**

Unique 64-bit address assigned to a device.

**world wide port name (WWPN)**

Unique 64-bit address assigned to each port on a device. One WWNN may contain multiple WWPN addresses.

**world wide unique LUN name (WWULN)**

WWULN identifiers for SCSI devices are read from page 83 and page 80 of your SCSI block device as based on the SCSI standard. SANsurfer looks for identifiers in the order of: page 83 type 3, page 83 type 2, page 83 type 1, page 80, and lastly page 83 type 0.

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